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EXPLORING VALUE CO-CREATION BEHAVIOR AND SERVICE INNOVATION WITH SERVICE DOMINANT LOGIC TO MEASURE BUSINESS PERFORMANCE

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Exploring Value Co-Creation Behavior and Service Innovation with Service Dominant Logic to Measure Business Performance

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A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy

December 2016

CERTIFICATE OF ORIGINALITY

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_____ (Signed)

___KHAN Muhammad Aamir___(Name of Student)

This thesis is dedicated to my parents.

ABSTRACT

The current developments in the behavior of marketing thinking have transformed the traditional style of observing consumers and producers separately to the involvement of customers in producing goods and services. This transformation shows that the values generated by consumers together with the organizations in developing innovative services are through active collaborations. Traditionally, product values are generated by the manufacturer, which mainly focus on customer satisfaction after purchasing the product rather than by the experience of using the goods and services that are brought by the customers. On the contrary, service dominant logic suggests that customers can be involved in generating the needed services with the organizations thereby enabling a significant influence on the process of value creation.

In the past decades, numerous researchers have studied the ideas relating to the value co-creation in different perspectives, in particular to the processes and effects of value co-creation; however, it is lacking study relating value co-creation with customers' behavior, and their linkages with the performance of services and business outcome. This research aimed to fill these gaps and has identified the relationship between value co-creation behavior and innovation in services with dominant service logic. It also examined the individual customer interactions among the value co-creation behavior, innovation in services and service dominant logic. Additionally, this research also investigated the contributions of co-creation behavior in service innovation to performance; how the use of service innovation and value co-creation behavior can be impacting the business performance; and the relationship between service dominant logic and the performance of the organizational business.

This research focused on the service industry, the organizations in this industry are concerning about the quality of their services and customer relationships are the key factors affecting their performance. By utilizing service dominant logic for value co-creation behavior and service innovation as a framework, this research conducted an empirically study to investigate how the value co-creation behavior with customers can affect the business performance for service industry. Furthermore, this research also identified the factors which significantly affect the performance of service innovation.

The results from this research indicate that the service dominant logic not only plays an important role during value co-creation process but also mediate the relations for innovating services and business performance. Customer value co-creation behavior has significant influence on the factors relating to service innovation performance, which ultimately triggers the novelty of services in organizations. The findings from this research have both theoretical and managerial impactions that engaging customer in value co-creation through communication and understanding of customer behavior will lead to have a better service innovation and performance, and ultimately lead to a better business performance.

PUBLICATIONS ARRISING FROM THE THESIS

List of Journal Papers

1. Khan, Muhammad Aamir & Tsui, Eric (2015). A conceptual framework for incorporating value co-creation behavior in service innovation to measure performances, *The Japan Intellectual Capital Management Journal*, 1(1), 21-31.
2. Khan, Muhammad Aamir & Tsui, Eric (2017). Front line employee's involvement in service innovation performance: An empirical research. Submitted to *International Journal of Innovation Management*, in June 2017, under review.

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LIST OF ABBREVIATIONS

SEM = Structural Equation Modeling

CVCB = Customer Value Co-Creation Behavior

ISk = Information Seeking

ISh = Information Sharing

RB = Responsible Behavior

PI = Personal Interaction

FB = Feedback

AD = Advocacy

HP = Helping

TL = Tolerance

SI = Service Innovation

Pr = Process Innovation

Pd = Product Innovation

SDL = Service Dominant Logic

CC = Customer Collaboration

BPC = Business Partner Collaboration

CO = Customer Orientation

IO = Innovative Orientation

EC = Employee Collaboration

KIM = Knowledge Integration Mechanism

SIP = Service Innovation Performance

BP = Business Performance

Chapter 1: Introduction

1.1 Introduction

There are many factors affecting business performance. Based on the literature review, Customer Value Co-Creation Behavior (CVCB) and Service Innovation (SI) are the two key factors among others affecting the Business Performance (BP). In this research, we will study the relationship between CVCB, SI and BP for the service industry in Hong Kong; we will also study the mediator effects of two variables, namely Service Dominant Logic (SDL) and Service Innovation Performance (SIP). This chapter will provide the background and justification of the research, followed by research objectives and questions and a brief overview of the research methodology.

This chapter is divided into eight sections as shown in Figure 1.1:

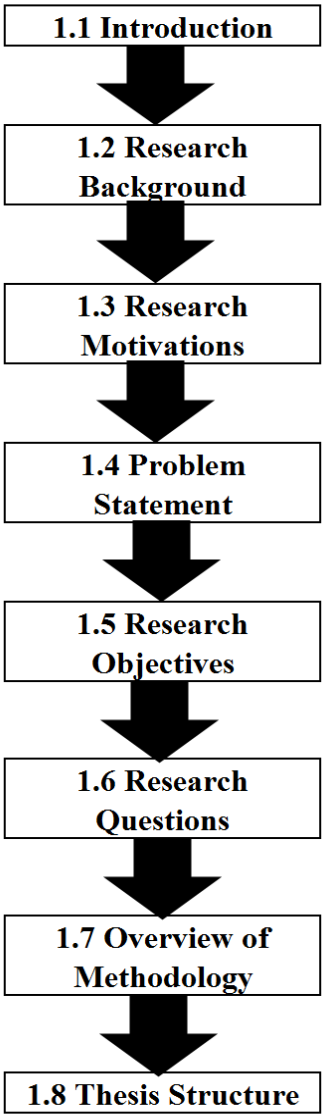


Figure 1.1 Structure of Introduction

Source: Developed for this research

1.2 Background of the research

Recent developments in the innovation of services have separately transformed from the customary style of producers and observing consumers or customers. This conversion reveals that there is a generation of significant value by the customers to organizations. The product or service value is generated particularly by organizations that focus on the post-utilization satisfaction of customers rather than in what way the

customer used the product or service.

This dominant product logic has been weakened with the developing importance of "intangibles" and the concept of innovation in services, relationship marketing, co-creation, and service marketing, in the past two decades. Vargo and Lusch (2004) proposed a service dominant logic which suggested that customers who take part in communication with organizations make substantial contributions in the process of value co-creation. There are several examples which show the service setting for co-creation such as a customer giving directions to the driver of a taxi through a traffic jam to reach the required destination. This leads to the concept that customers co-create the value and are significant to the organization in the process of value co-creation (Prahalad & Ramaswamy, 2000). Customers may be involved in the process of value co-creation prior and during the process of utilization.

The concept of value co-creation has lately gained interest from various scholars because it strategically applies both practice and theory (Ehrenthal, 2012). It's basically related to the co-creation during the process of communication between customers and organizations (Grönroos, 2000; Vargo & Lusch, 2004). It is an act of co-creation executed by the producers and the recipients by bilateral coordination for mutual benefits, with the use of operant resources (Ehrenthal, 2012; Grönroos, 2011). In contrast to the traditional practices of marketing, co-creation of value basically assumes that the recipient has a significant part in the communication process which equally co-create and co-produce the value (Grönroos, 2000). This area of research has become more prominent among researchers after the development of Service Dominant Logic (SDL) which is fundamentally focused on the role of customers in

the generation of value (Vargo & Lusch, 2004). SDL states that the recipient of the services is always valued co-creator (Vargo & Lusch, 2008).

Therefore, several other researchers have explored the contribution of customers in the co-creation of value through various theoretical frameworks. In several types of research studies, it was concluded that a process-based framework for developing co-creation of value was suggested by offering two-way value co-creation process with the utilization of relationships in the processes of customer and relationship of co-creation design practiced by an organization (A. F. Payne, Storbacka & Frow, 2008). The prominent ideas that customers and building relationships do by value co-creation are developed through marketing, and extensive knowledge can gain competitive advantage. The significance of operant resources is the major component of exchange in the process for businesses. Xie, Bagozzi and Troye (2008) explained the customer participation process in the co-creation of value by utilizing "presumption" as an effort in the creation of value. Likewise, Zhang and Chen (2008) suggested a theoretical model of examining the process of value co-creation and identified that the main activities of co-creation from customer and employees are given in customization and increased service capabilities. Nambisan and Baron (2009) developed a framework related to value co-creation which explained the co-creation of value in the virtual customer environment by examining the characteristics of customer interactions and perceived the benefits of customers in value co-creation. They discussed that the participation of customers in the activities of product support is improved by beliefs of customers receiving benefits in the involving activities of value co-creation.

Several other conceptual and theoretical models have explored co-creation of value in various industries from different perspectives. However, it has been found that various

models have common ideas focusing on the wider view of the co-creation of value, fundamentally arguing on the particular aspects of co-creation of value between the organization and customer, monitoring the effects and processes of value co-creation. Ironically, not much research has explored the factors that focus on the value co-creation behavior of customers towards employees and how it affects the business performance in an organization. As Xie et al. (2008) and Yi and Gong (2013) suggested, customers can be considered as key players in the co-creation of value, so it is imperative for organizations to mainly emphasize on the behavior of customers and see how it can affect their business performance. Therefore, further research is essential to examine the factors which relate to the behavior of customers towards the co-creation of value and subsequently, business performance. To fill such a research gap, this research proposes a conceptual model through focusing on customer behavior in an innovation activity during the development of services as important factors and their effects on innovation and business performance.

1.3 Research Motivation

As per the basics of Service Dominant Logic that customers are always co-creators of value, several marketing academics have supported, forwarded and contributed to the advancement of this logic (Day, 2006; Gummesson, 2006; Holbrook, 2006). Several research studies on value co-creation utilized the earlier research and objectives to develop a theoretical framework for the process of value co-creation and providing directions for further researches (Etgar, 2008; A. F. Payne et al., 2008; Shankar, Urban & Sultan, 2002). Few of them are from the perspective of “marketers” (Blazevic & Lievens, 2008). Besides this, several other empirical types of research are focusing on

exploring the aim of value co-creation generation (Nambisan & Baron, 2009; Xie et al., 2008).

Realizing the significance of the behavior of customers in the co-creation process, existing research identified the experiences related customer interactions. Further studies showed that the basic emphasis was on the experiences of customers for value co-creation (Russo Spena, Caridà, Colurcio, & Melia, 2012), experiences related to consumption (Grönroos & Voima, 2013), experiences related to relationship (Payne, Storbacka, & Frow, 2008) and experiences related to value co-creation (Füller, Hutter, & Faullant, 2011). Less emphasis was given to the behavior of customers in the co-creation of value and the effect on performances (Payne et al., 2008). Few studies developed conceptual frameworks related to customer interactions. For example, Prahalad and Ramaswamy (2004) mentioned that value is the key constituent for co-creation which is basically generated through collaboration with organizations.

Organizations usually seek consultation with customers in the generation of experienced-based value during the interactions. Subsequently, both the organization and customer initiate value co-creation at the same time. For example, employees in some service organization approach potential customers while they are looking for some required services to help them in getting the right services or in giving proper information on what they are seeking for.

In this scenario, both the organization and customers collaborate and generate mutual value with their respective behavior. In this situation, Prahalad and Ramaswamy (2004a) assumed both the organization and customer as potential collaborators, participating in exchanging dialogue, in a platform of interaction with the aim of

generating value co-creation. In the same way, A. Payne, Storbacka, Frow, and Knox (2009) suggested a process to explore the behavior of value co-creation, an interaction between employees and customers, interaction between customer and customer, and factors for stakeholder endorsement.

1.4 Problem Statement

While many studies have been conducted which deal with value co-creation, there is hardly any research exploring and examining the behavior of customers in the co-creation of value in service organizations, and their outcomes regarding performance. Service Dominant Logic mainly emphasizes the customers' role as value co-creators during the process of service delivery, not only participating in co-producing value to the service (Vargo & Lusch, 2004). It has been studied that the transformation of customers' role during the process of service delivery which has significantly changed in the past three decades. Mills and Morris (1986) mentioned that the customers' roles during the process of service delivery were only assumed as clients for the organization and only regarded as 'partial employees' of an organization. Later, Bowen (1986) considered customers as a key 'human resource' in organizations. Other research by Hibbert, Winklhofer, and Temerak (2012) assumed customers as 'resource integrators' who attain value by themselves by utilizing their personal attributes and other organizational resources, and effectively participate in the value co-creation (Bowen & Schneider, 2014). Conversely, a minimal emphasis has been given in seeking and understanding the behavior of customers in effectively co-creating value and in understanding their outcomes on the performance of an organization.

Given the extensive earlier research on the co-creation of value in different scenarios and industries, it would be valuable to get to know about the behavior of customers towards the co-creation of value. As the employees and customers co-create value through interaction during the process of service delivery, this usually takes place within and outside the organization, as a shared context. By taking consideration of the behavior of customers in participating in value co-creation within an organization, the research outcomes can be utilized by managers to see customers from different perspectives and to focus on the factors that can really guide customers and employees to co-create significant value. This research gap has been apparent for many years, and the current research study intends to fill this gap and to understand the value co-creation behavior of customers during the interaction process. This research study is also valuable for academic researchers as it also highlights various perspectives and characteristics of the value co-creation behavior of customers in generating novel services, as customers are considered to have the essential roles in the service delivery process.

The present research was conducted in service industries in Hong Kong, basically focusing on Banking and Insurance, Transportation, Trade and Logistics, Hotel and Tourism and other professional services which are the major service sectors and comprehensively covers the whole service industry of Hong Kong. Usually, service encounters mainly happen through interaction between employees and customers, in which customers mention their service needs to the employees of an organization. Not every customer shares their needs with the same behavior, as some employees might not behave well with customers or some customers might behave rudely to employees. In service industries, there is a substantial amount of time in which employees or customers interact till the delivery of the required services. The

customers' presence in the vicinity of the service organization gives a chance to have close interactions not only with customers and employees but also among other customers. The behavior of employees and customers may also be influenced by many other factors like the layout of the service vicinity, the importance of the required service, the usual time taken by the organization in the service delivery, etc. The attitude of employees towards their customers is basically related to their job satisfaction level in the working environment. Selecting different service industries for empirical research gives a broader opportunity to understand the behavior of customers in value co-creation and how it affects the performance of the organization.

1.5 Research Objectives

Customer Value Co-Creation Behavior (CVCB) and Service Innovation (SI) are the processes to have a better understanding about the expectation of our customers and if the services that we provided can meet the customers' requirements or not. Previous research indicated that Service Dominant Logic (SDL) and Service Innovation Performance (SIP) are the two major factors affecting the Business Performance (BP). The major aim of this research project was to explore how important and to what extent these two factors (CVCB and SI) are influencing the Business Performance (BP) and the effect of SDL and SIP. To obtain such goal, the following research objectives are defined.

1. To examine the influence of Customer Values Co-Creation Behavior (CVCB) on Service Dominant Logic (SDL) and Service Innovation Performance

(SIP).

2. To study the alignment of service innovation and value co-creation behavior on business performance.
3. To determine the relationship of service dominant logic on service innovation performance and business performance.

1.6 Research Questions

Following research questions are proposed after establishing the research objectives of research:

1. What are the values associated with Customer Value Co-Creation Behavior in an organization?
2. How does service innovation in-relation with service dominant logic affect the business performance of business?
3. To what extent does service dominant logic enhance the organizational performance?

1.7 Overview of Methodology

The methodology of the research which was used to gather data was the quantitative approach which was selected after examining several research paradigms of research. The research design was developed based on the framework suggested by Serakan and Bougie (2003).

A survey questionnaire with closed questions using a 5 point-Likert scale was developed by reviewing the literature which covers the research objectives. A pilot test was done to get the feedback on the questionnaire including its language, understandability, before actual data collection. The target service industries selected for this research were hotel and tourism, logistics, trade and transportation and insurance and banking and other professional service industries. The target respondents selected for this research were top management, R&D, and front-line employees. The data were collected through online survey tool "mysurvey."

The survey questionnaire was launched in September 2014 and data were collected till August 2015. There were totally 869 responses collected for the main survey out of which 401 were valid. The gathered data was screened, inspected and analyzed by using SPSS and AMOS version 22. The valid data were examined by exploratory data analysis to check validity, reliability and standard regression and confirmatory data analysis through structural equation modeling.

The results show that the value co-creation behavior of customers has a vital role in business performance. It is positively co-related with service dominant logic and performance in the organization. By increasing the communication with the customers, it not only enhances the innovation of services but also leads to improving the performance of the organizations. Positive relations were also found between service innovation and service dominant logic. The establishment of how the exchange of services between customer and organization to innovate services can improve the performances of organizations. The results also concluded that the service dominant logic is positively correlated with the performance of service innovation and business performance in organizations.

1.8 Structure of the thesis

(I) Chapter 1: Introduction

This chapter gives a concise overview of the research background, motivation for research, problem statement, objectives of research and research questions. It also provides a brief overview of the methodology of this research.

(II) Chapter 2: Literature Review

This chapter provides an overall review of the literature on value co-creation and behavior of customer value co-creation, concise development, and usage of service dominant logic, service innovation, and performance of the organization. Such review builds the basis for the development of a conceptual framework and respective hypotheses which are discussed in the following chapters.

(III) Chapter 3: Research Design and Methodology

This chapter describes the choice of research paradigms, the justification for choosing the research methodology, the theoretical framework development, the design of the research and data collection, survey administration and data analysis procedure and tools.

(IV) Chapter 4: Findings and Data analysis

This chapter describes the outcomes of the data analysis of this research, including the pilot study, analysis of the respondents' profile and descriptive statistics. The outcomes of exploratory data analysis and confirmatory data analysis are also discussed. Tests on the validity, reliability, correlations and simple regressions are conducted in the exploratory data analysis. Analysis of the measurement model and structural model are carried out in confirmatory data analysis by using structural equation modeling.

(V) Chapter 5: Conclusions and Discussions

This chapter gives the overall conclusions of the findings and analysis and answers all the research questions developed while reviewing the literature.

(VI) Chapter 6: Implications and Contributions

This chapter discusses the overall implications and contributions to the research field which were determined in the previous data analysis chapter.

(VII) Chapter 7: Limitations and Future Research

This chapter discusses the limitations of the research, and future research is also discussed, opening the door for a further research topic.

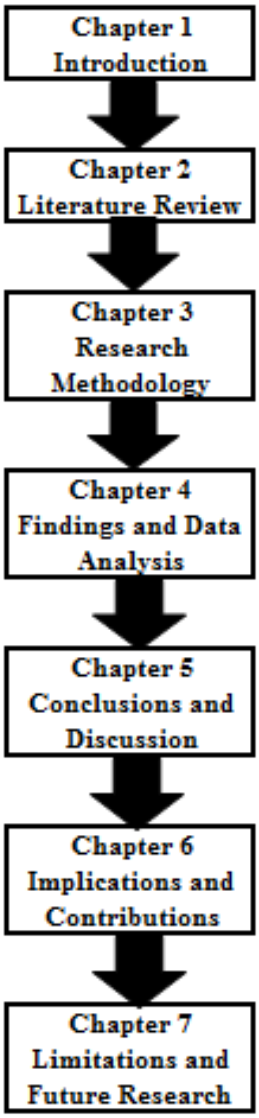


Figure 1.2 Structure of thesis

Source: Developed for this research

Chapter 2: Literature Review

2.1 Introduction

The previous chapter described the holistic background information related to the research which is made the foundation for the following set of chapters. Reviewing of the existing literature is the major aim of this chapter which builds the basis of the theoretical framework.

This chapter is further divided into six sections as shown in Figure 2.1:

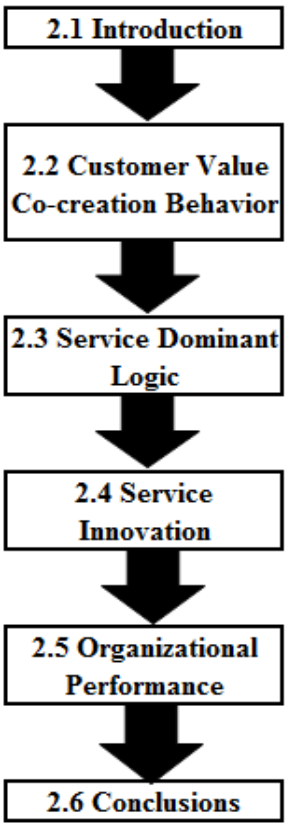


Figure 2.1 Structure of Literature review

Source: Developed for this research

As explained in the previous chapter, three lenses were utilized to review the literature and in assembling the information. These lenses offered a diversified perspective to the process of research. Several researchers have mentioned the significance of diversified approaches (I. J. Chen & Paulraj, 2004). They classified substantial considerations; however, a few limitations were mentioned including many researchers have concentrated on manufacturing industries, neglecting service organizations; the proposed alignment of two lenses – customer value co-creation behavior and service innovation has not been yet to identify on the third lenses of business performance. This review of literature delivers what was studied, transformed and challenged by the various researchers from earlier research in some service sectors. Further sections are thematically organized.

Figure 2.2 elaborates a comprehensive overview of the rationale following to review the literature. As mentioned in the previous chapter, the three lenses facilitated the focus of researcher on the particular issues that helped to frame the conceptual framework.

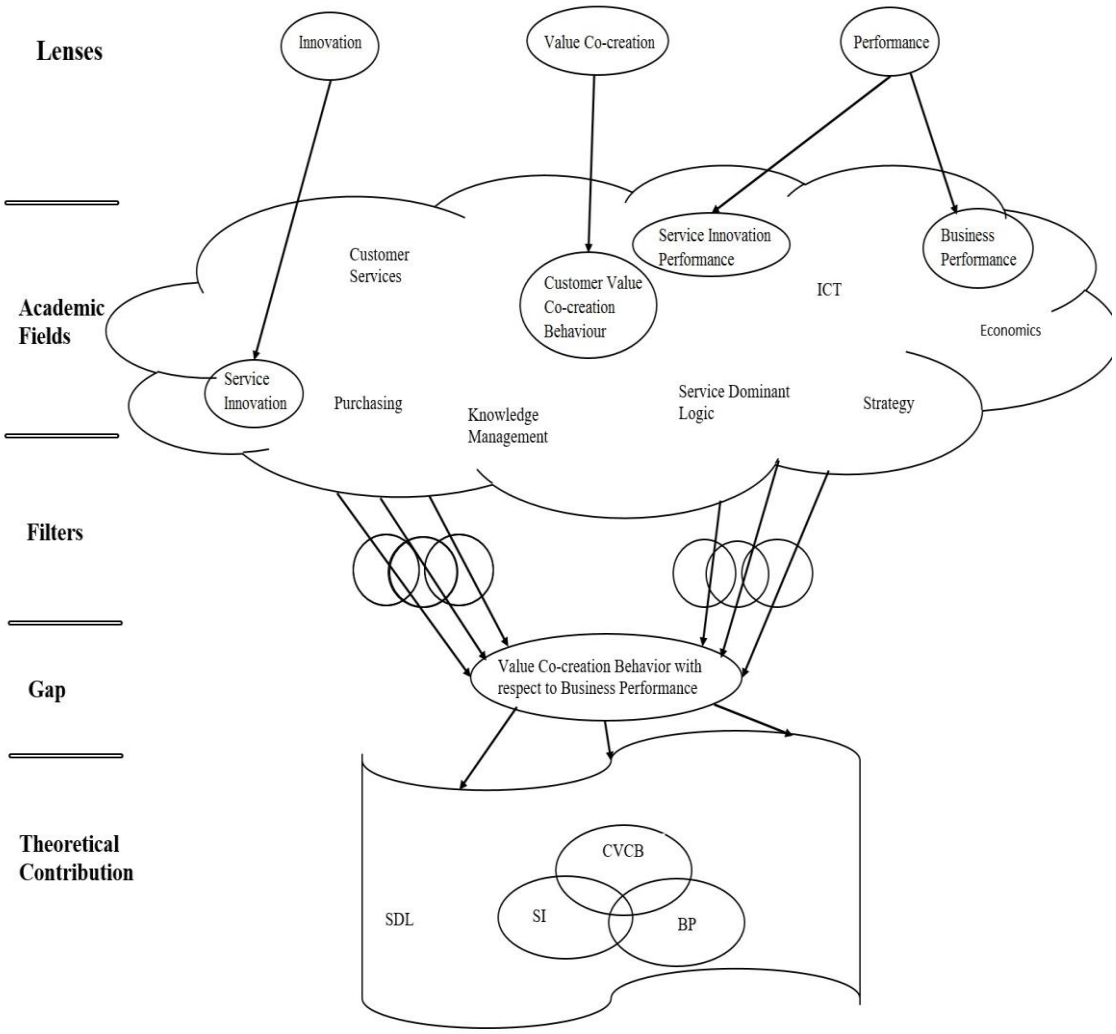


Figure 2.2 Overview of Literature Review

Source: Developed for this research

Using three lenses to concentrate on the relevant literature to find the gaps in the present knowledge, the research was conducted. The findings and analysis provide the theoretical and practical contributions developed by the customer value co-creation behavior and service innovation debate. Contributions from this research are directed at the service innovation community to inspire the exchange of ideas between innovation in services and business performance, which further develops a learning experience and initiates the possibilities for future research.

2.2 Customer Value Co-Creation Behavior

In this research, service is defined as the unit of exchange. Vargo and Lusch (2004) defined "service" as a unit of exchange, which was further elaborated as "the application of specialized competencies (knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself" (Lusch & Vargo, 2006). This definition provides a more comprehensive description of a service. First, it discriminates operand resources from the operant resources whose proactive and dynamic nature are more critical to business. Second, it has a comprehensive view to benefit others and covers a broad range of several units, which includes society, employees, investors and most importantly customers.

The previous proposition by Vargo and Lusch (2004) that "the customer is always a co-producer." Apparently, co-producer could not actually reflect the role of the customer, and it was missing a key element of innovation and creativity. Lusch and Vargo (2006) admitted that this is inadequate and revised the role of the customer as co-creator of value.

Researchers presented the suggestion that "co-creator of value" is towards the dominant service logic, in contrast with "co-producer" which relates to production-oriented or goods dominant logic. "Co-production" is one of the important parts of co-creation of value which is elaborated by Lusch and Vargo (2006). Co-production suggests that customers show participation in the offering of service through the shared production of related goods, co-design, or shared inventiveness". An alternative significant service dominant logic aspect is that the performance of an organization is

now measured through the further utilization of operant resources rather than how much additional results or operand resources can be gathered. Performance in financial terms does not show the maximization of profit but demonstrates the mechanism of feedback for service providers into assessing their capabilities to assimilate the operant resources.

Service dominant logic (SDL) is corresponding to the idea of "co-opting customer competence" tossed by Prahalad and Ramaswamy (2000) which is supported with several other examples in practical business. Vargo, Lusch, and Akaka (2010) discussed that the major concept of the competence of co-opting customers is the co-creation of the value of customers. Customers become endogenous to the organizations. They collaborate and interact with organizations and other customers to develop customized services (Ranjan & Read, 2016). However, Grönroos (2000) elaborated that organizations usually communicate with the customers via different platforms to maintain their expected outcomes of services. SDL can be used to explain to business about a basic concept of marketing shift. Value is generated by and with the customers during experience sharing (Lamberti & Paladino, 2013).

Ballantyne and Varey (2006) discussed about the concept of "value-in-use" which attenuates the traditional concept of exchange-value and states that the creator exclusively generates value and implanted in the product. This new concept says that customers can take part in the co-creation of value and thus they are endogenous to a company and can act as operant resources.

Furthermore, Prebensen and Xie (2017) also discussed that customers are looking for

solutions, benefits, and meaning whereas products are just tangible goods to attain such objectives. Having such knowledge of the process of value co-creation, it is much simpler for developers to realize that their part is modified to the facilitators of the co-creation of value from the creator of value. Saarijärvi, Kannan, and Kuusela (2013) also supported the fact that such perception widely opens the horizon of value co-creation practices and provides sufficient business opportunities to practitioners.

Previous research found that customer value co-creation behavior is of two types: customer participation behavior, which discusses the (in-role) behavior of customers and is the essential factor for successful co-creation of value, and customer citizenship behavior which discusses the voluntary (extra-role) behavior of customers, and gives additional value to an organization; however, it is not particularly essential for the co-creation of value (Groth, 2004; Yi & Gong, 2013). Additionally, it was evident from empirical research that behavior relating to in-role and extra-role showed several patterns, having numerous consequences and antecedents (Grönroos, 2011; Kindström, Kowalkowski & Sandberg, 2013).

This research utilizes the scale developed by Yi and Gong (2013) related to customer value co-creation behavior. Their research conceptualized the behavior of customer value co-creation into two major factors, which are customer participation behavior and customer citizenship behavior, and further divided into several dimensions. Customer participation behavior comprises Information Seeking, Information Sharing, Responsible Behavior and Personal Interaction. Customer citizenship behavior comprises Feedback, Advocacy, Helping and Tolerance.

Jaakkola and Alexander (2014) found that such typology equates to the customary

approach on the difference of behavior of employees' in-role and extra-role. Borman and Motowidlo (1993) suggested a theoretical framework on dividing the domain of individual performance into two parts: task performance and contextual performance. Task performance refers to the behavior that is required and estimated for the effective completion of the service delivery, without which such behavior delivery of the service will not be completed (Devereux & Gallarza, 2016). Similar to employees, Ngo and O'Cass (2013) argued that participation of customers in the delivery of service should involve certain behavior which includes information seeking, information sharing, responsible behavior and personal interaction which, in-short, is considered as customer participation behavior. However, Mina, Bascavusoglu-Moreau, and Hughes (2014) discussed contextual performance which refers to behavior that is discretionary and voluntary and is not required for the effective co-creation of value.

2.2.1 Customer Participation Behavior

i. Information Seeking

Kellogg, Youngdahl, and Bowen (1997) explained that customers require information to understand the service requirements and to clarify other queries. Particularly, customers need information related to the status and parameters of service. However, Mascitelli (2000) stated that customers want information related to their contribution as co-creators of value in regard to, they are supposed to do and how they are estimated to perform. Giving all this detail decreases the uncertainty of customers related to the co-creation of value with employees (Blazevic & Lievens, 2008). Like employees obtain the job, knowledge about the position and behavior required to contribute as members

of organizations, customers also need to understand the service nature and their possibilities in the process of value co-creation (Kellogg et al., 1997; Zeithaml, Parasuraman, & Berry, 1990).

Rebernik and Širec (2007) explained that seeking of information is vital not only to customers but also for employees of organization for two basic reasons, (I) information decreases the uncertainties and supports the direction of knowledge to control and understand the environment of co-creation, (II) seeking of information enables not only customers but also employees to understand their role as co-creators of value and in becoming a part into the process of value co-creation. Mahr, Lievens and Blazevic (2014) suggested that employees or customers can seek information from one another in several ways. For example, employees or customers might seek information directly from other customers and employees regarding their requirements, or they could also observe the behavior of other customers to get particular cues to their request (Morrison, 1993).

ii. Information Sharing

Lengnick-Hall (1996) debated that employees or customers should give the required information for utilization in the process of value co-creation for successful outcomes. In any case, if customers do not give sufficient information relating to their required services then employees cannot start or proceed in the process of providing the required services or vice versa. By providing all the information to the employees, customers can make sure that the organization will give the desired service output as per their requirements (Ennew & Binks, 1999). Like, by visiting a doctor, a patient

should provide all the sufficient information relating to their condition to receive the appropriate treatment by the doctor. Therefore, sharing of information is the major part in the success of co-creation of value.

iii. Responsible Behavior

Responsible behavior arises when customers realizes their roles, responsibilities and duties in providing enough information and acting as part-of-employees (Ennew & Binks, 1999). Also, Bettencourt (1997) explained that in order to get successful co-creation of value among employees, customers, partners, everyone should be co-operative and follow the policies and rules and accept directions from each other. Customers should follow the guidelines from the employees, otherwise there is a less chance to achieve the required service output (Petri & Jacob, 2016).

iv. Personal Interaction

Personal Interaction relates on interpersonal activities among employees, organizations and customers, and is a major part for the successful co-creation of value (Ennew & Binks, 1999). On the other hand, Grönroos (2000) mentioned that "customer functional quality" in the communication between employees and customers relates to aspects of interaction, including respect, friendliness, and courtesy. In a service environment, co-creation of value occurs where the environment has more positive congenial and pleasant situations, and therefore the employees and customers can more easily interact for the co-creation of value (Lengnick-Hall, Claycomb & Inks, 2000).

2.2.2 Customer Citizenship Behavior

i. Feedback

Feedback relates to unsolicited and solicited data which are given by customers to employees or vice versa, which support the organization or employees in amending the process of service creation in the future (Groth, 2004). Bettencourt (1997) also added that employees or customers are in a significant position to provide suggestions and guidance to each other as they possess substantial experience of getting or providing services and considered to be experts from the perspective of the customer or employee. Employees are the getting side of the behavior of customers and customers can get some feedback regarding their participation behavior and similarly, employees can receive the feedback from the customers as well to improve their services (A. Payne et al., 2009). On the contrary, Galvagno and Dalli (2014) argued that feedback of customer can be invaluable, but it is not necessary for the successful delivery of the service.

ii. Advocacy

Advocacy relates to referring or recommending a business, either an employee or organization, to other people such as family or friends (Groth, 2004). In the context of the co-creation of value, Bettencourt (1997) explains that advocacy refers to the commitment of an organization and improving the interests of the organization beyond the interest of an individual customer. There are several ways for the

advocacy, however, Devereux and Gallarza (2016) described the most common indicator of customer loyalty which is by means of word-of-mouth, and it adds significantly to the growth of the reputation, marketing products and services of an organization, elevating the service quality and increasing the number of customers. Advocacy is purely not necessary for the successful co-creation of value (Ranjan & Read, 2016).

iii. Helping

Helping refers to the behavior of employees or customers aiming to help other employees or customers (Groth, 2004). In the process of the co-creation of service, customers often help other customers, as they have experienced to service themselves and they know how to expect service outcomes based on their requirements (Edvardsson, Tronvoll & Gruber, 2011; Groth, 2004). As compared to the role of employees, Hsiao, Lee and Chen (2015) described that the roles of customers are not particularly defined or scripted, customers help other customers spontaneously as per their queries.

There is a chance that customers may help other customers to show empathy regarding helping them in getting their required services (Rosenbaum & Massiah, 2007). Employees can see that customers who have experienced certain situations to get their required services may also help other customers who may experience similar situations.

iv. Tolerance

Tolerance refers to the willingness of the employees or customers to show patience when the delivery of service is not meeting the expectations of customers, like unexpected shortfalls, problems in equipment or any other delay (Lengnick-Hall et al., 2000). Keaveney (1995) also stated that services in which failure occurs is one of the biggest reason for the switching behavior of customers and has an effect on the profitability and market share of organizations, and the tolerance of customers and employees may help the organization comprehensively.

As customer citizenship behavior considered to be purely from customers' motivation towards value co-creation, it further argues in a value co-creation context that motivation may be considered as a condition that exists before which urges to do something based on human behavior. It describes that why human react or behave in particular ways, what stimulates their behavior and what factors direct their following responses (Deci and Ryan, 1985; Namibisan, 2002). Numerous researches hypothesized earlier that the quality of customer participation towards the innovation activities of organization are basically depend on their judgement of the intangible and tangible benefits expecting from organizations (Bretschneider, Leimeister, & Mathiassen, 2015; Nambisan, 2002). Further research should find the answers and reasons towards the driving and motivations factors of customers to involve the value co-creation activities. The approach towards the benefits can be considered as a wider illustration of "customer value", even though it tends to refine the probe on motivation towards the economic terms (Holbrook, 2006).

Motivation towards value co-creation behavior can be of various forms. Holbrook (2006) discussed about categorization of customers' motivation which is intrinsic or extrinsic and self-oriented in nature and which offers economic, social, altruistic and hedonic value forms for any value co-creation activity, service or consumer product. While it is basically accepted that motivation can also be intrinsic and extrinsic in nature, it is crucial to differentiate between motivation and consumer value. It is assumed that particular value of an activity, service and product to a customer is fundamentally dependent on their subject-object interaction within a definite situation (Holbrook, 2006). Additionally, (Felício & Freire, 2016) mentioned that motivation, stimulus that communication and view as a part of the satisfying experiences which is expecting from organizations which can be achieved through proper exchange of customer requirements and their delivery.

Earlier researchers assumed that motivations of customer participation vary among three types of value co-creation activities including direct collaboration, joint collaboration and independent collaboration with organization because interests and benefits are also varying from type to type of level of customer participation towards value co-creation. Considering different kinds and levels of value co-creation from customers is essential because the engagement extent and context with a community or organization varies in each case, motivation of customers towards co-creation is resulted in significant relationship to the probable for satisfying experience or value (Felício & Freire, 2016; Holbrook, 2006).

2.2 Service Dominant Logic

Service Dominant Logic refers to a customer acting as an operant resource which defines and creates the meaning of value (Lusch & Vargo, 2006). In this research, co-creation of value is assumed as the process of dominant value generation resulting from adaptation and collaboration among customers, mutual learning, and communities of customers through the interaction of customers' participation with other customers and organizations (Le Meunier-FitzHugh, Le Meunier-FitzHugh, Palmer, Clark & Hair, 2016).

Vargo and Lusch (2004) and Etgar (2008) defined that co-creation of value is basically a process, not an incident. The time at which the customers get value from the utilization of a service can take years. The idea of the presumption was elaborated by Xie et al. (2008) as "value creation activities undertaken by the consumer that results in the production of products they eventually consume and that becomes their consumption experience." Grönroos (2011) added that co-creation emphases on the customers and organizations' interaction whereas presumption focuses on the concurrent amount of value generation and consumption. Nonetheless, both concepts suggest the same idea that customers have a vital role by active participation in generating value.

The detailed insights from the building blocks of theoretical propositions of Service Dominant Logic, also known as foundational premises (FPs), help to develop the drivers for service innovation: (I) Collaborative Competencies (II) Dynamic Capability of Customer Orientation (III) Knowledge Interfaces (Vargo & Lusch,

2008). All these insights are assumed to have significant outcomes on service innovation performance and consequently affect the business performance. These count as the magnitude of change and number of innovations (Vincent, Bharadwaj, & Challagalla, 2004). As the core aim of a novel service is ‘‘to contribute to a firm’s growth as a whole’’ (Johne & Storey, 1998), this research also assumes the final effects of innovation in services on outcomes of an organization’s business performance.

2.3.1 Collaborative Competences

i. Customer Collaboration

The major FPs of service dominant logic is, “The customer is always a co-creator of value” and “The enterprise cannot deliver value, but only offer value propositions” (Vargo & Lusch, 2004). These premises suggest that an organization cannot develop or produce anything of great value without the input from customers, or as Zeithaml, Bitner, and Gremler (2006) explained, the customers always play a major part in generating services by using their competencies and resources. It also indicates that customers significantly play an essential part in the process of service innovation.

Von Hippel (1986) stated that the concept of customer collaboration during the process of innovation is like the propositions and H. W. Chesbrough (2011) added the literature on open innovation. Nonetheless, these propositions are related to the novel product (tangible) development in the design context, where external customers directly participate in the various stages of the design and production. Conversely, in the process of service innovation, customers participate in providing their requirements rather than executing the tasks, and the collaboration of customers relates to “feedback

and information on particular requirements" and "effective communication with customers through discussions, focus groups and interviews (Alam, 2002).

Service Dominant Logic suggests that collaboration capability and the development of customer service changes into operant resources through which an organization can develop competitiveness and innovation (Vargo & Lusch, 2008). This also decreases the time for service development and enables swift outcomes of innovative services which ultimately increases the number of innovative services (Le Meunier-FitzHugh et al., 2016). This collaboration also results in the right outcomes as innovations are developed based on the requirements of customers (Witell et al., 2015). Also, such innovations through collaboration with customers are also more incremental rather than radical. Therefore, customer collaboration produces more innovative ideas and swift utilization (Shankar et al., 2002), and dependence on previous experience somewhat decreases the chances of innovations (Levinthal & March, 1993). However, collaboration with customers is not usual in increasing service innovation radicalness.

ii. Business Partner Collaboration

Business partner collaboration is a major foundation of knowledge related to innovation in service, as also discussed by SDL's basic premise: ''All social and economic actors are resource integrators'' (Vargo et al., 2010). It is specifically correct when organizations mainly collaborate with outside partners and suppliers to deliver their services. The literature related to open innovation suggested that partner collaboration in the process of innovation can increase the process and develop further ways for novel ideas (H. Chesbrough, Vanhaverbeke & West, 2006; Fang, 2008).

However, Lusch, Vargo, and O'Brien (2007) mentioned that service dominant logic also suggests that such concepts of partner collaboration effectively increases the innovation in services, and ultimately results in a substantive change which is key to the process of service innovation.

It is expected that the collaboration of business partners basically influences innovation radicalness in-contrast to volume for various reasons (Luca & Atuahene-Gima, 2007). First, when consumers get services from an organization (for example, in hospitality), the overall customers' experience is usually from communication with other interlinked service providers (in the hospitality industry: restaurants, booking agency, buses, shops, etc.) (Cova, Dalli & Zwick, 2011). Second, external partners usually have extensive knowledge and ideas about consumers who are different than the organization (Groher, 2003). Various ideas and perspectives are also generated during the process of innovation which ultimately increases the chances of radicalness (Atuahene-Gima, Slater & Olson, 2005). Additionally, Argote, McEvily, and Reagans (2003) suggested that integration of knowledge from external partners also increases the cost of coordination specifically, when involving tacit knowledge that exists in the area of service innovation. So, business partner collaboration is better for relatively bigger projects which justify the project costs of coordination (Pittaway, Robertson, Munir, Denyer & Neely, 2004).

2.3.2 Dynamic Capability of Customer Orientation

Two basic premises of service dominant logic – "A service-centered view is inherently customer oriented and relational" and "Operant resources (knowledge and knowledge

renewal) are the fundamental source of competitive advantage" suggest that organizations must be learning, and customer oriented at the same time (Vargo & Lusch, 2008).

Research shows that customer orientation (i) is intrinsically entrepreneurial (Deshpandé, Farley & Webster Jr, 1993), (ii) supports a progressive outlook (Han, Kim, & Srivastava, 1998), and (iii) can be treated as a novel behavior (Ranjan & Read, 2016). In contrast, some other researchers argued about the ability of customer orientation to develop effective contributions towards market trends because this may not motivate sufficient willingness on the part of the organization to take risks (Barrett, Davidson, Prabhu & Vargo, 2015) and because it emphasizes on present customers and their requirements, thus endorsing adaptive, in contrast to new, organizational learning (Berthon, Hulbert & Pitt, 1999). Other studies also argued that the link between innovation and customer orientation is particularly less efficient for services, where the orientation of the customer is observed as a failure-prevention approach rather than a success-inducing approach (Cano, Carrillat & Jaramillo, 2004; Kirca, Jayachandran & Bearden, 2005).

Ballantyne and Varey (2006) found that service dominant logic suggests a way to merge such various arguments by offering that active novel development of a service depending on the ongoing renewal, development, combining and sharing of valuable knowledge and information. This indicates that if a proactive drive is missing, then the orientation of customers at best facilities is obstructing the competitors in gathering an unmet service requirement that already exists, possibly in concealed form, but it usually does not enable better control of the market by initiating something novel (Hibbert et al., 2012). However, only being innovative enough and using

effective insights and knowledge to progress in organizational change does not ensure that the novel development of services is appropriately focused on customer satisfaction and value co-creation (Hult, Hurley & Knight, 2004).

The most significant aspect which organizations should particularly focus on is to explore new ways to co-create value with customers, which requires utilization of customer orientation and other resources of the firm to develop innovative services (Vargo et al., 2010). Notably, the use of innovative orientation and customer orientation must lead to the development of an operant resource which is capable of increasing opportunities for co-creation. Based on such evidence, this research suggests that the orientation of the customer should be linked to innovative orientation so as to develop dynamic capability in customer orientation (Menguc & Auh, 2006). This will evade the domination of the served market (Prahalad & Hamel, 1994) which is certifying a change related to customer focused (Zeithaml et al., 2006), will be favorable to innovative services.

As an innovative orientation and customer orientation are organizational level traits which develop a comprehensive context where important strategies of innovation usually emerge (Baker & Sinkula, 2007; Kyriakopoulos & Moorman, 2004). On the contrary, Gounaris (2006) mentioned that organizations often consider the dynamic capability of customer orientation to have some influence on both the amount and radicalness of service innovation. Such capability usually develops greater innovation because it enhances a culture of change through the whole organization which inspires current and systematic analysis concerning the requirements of the market (Menguc & Auh, 2006). It also enhances the willingness of an organization to cannibalize their significant key competencies, considered to be key essentials for radical innovations

in the service and product domains (Chandy & Tellis, 1998; Nijssen, Hillebrand, Vermeulen & Kemp, 2006).

2.3.3 Knowledge Interfaces

The fourth premise (FP4) of Service Dominant Logic, "Operant resources are the fundamental source of competitive advantage," and one more key premise (FP1) "Service is the fundamental unit of exchange" highlights the requirement of efficient mechanism of knowledge transfer for generating more innovating activities (Lusch & Vargo, 2006). Knowledge interfaces may be explained as "a set of social and physical conditions facilitating the transference of knowledge within and among organizations" (Sherwood & Covin, 2008). These interfaces ensure the gathering of knowledge and assimilation, along with the integration of knowledge and its dissemination (Madhavan & Grover, 1998).

i. Employee Collaboration

In the service domain, customer facing employees are assumed to be the most important interface for knowledge transference (Atuahene-Gima et al., 2005). Nevertheless, other research related to front-line employees in acting as a catalyst for generating innovative services is sparse (Gounaris, 2006) and to some extent, it is ambiguous (Johne & Storey, 1998). Several types of research argue that the participation of customer-facing employees in the development of novel services aids in identifying the needs of customers to expedite the implementation of innovation and

inhibits considerations of process-efficiency from the current needs of customers (Hipp, 2010; Santos-Vijande, López-Sánchez & Rudd, 2016). However, several other researchers argued that frontline employees are usually hesitant to cooperate in the development of new services as it increases their workload (Santos-Vijande et al., 2016).

Service Dominant Logic assumes front-line employees as operant resources which may provide useful knowledge for innovation and can act as a major source. To be efficient in acting as operant resources, employees are expected to work in a participative environment in which the organization encourages and values innovative ideas without castigating them for inefficient ideas, so employees feel encouraged and empowered in such environments (Bowen & Lawler, 1992) and are more interested in generating innovative ways to serve customers, aiding the alignment of business goals with the internal capabilities of the organization (Gounaris, 2006). Lusch and Nambisan (2015) explained that organizations which honorably ‘‘treat their employees as operant resources would be able to develop more innovative knowledge and skills and thus gain competitive advantage’’.

Efficient communication with frontline employees is considered to enhance the promptness of the novel development of service (Ballantyne & Varey, 2006) and the amount of knowledge gathered from customers related to their requirements (Mina et al., 2014). Hence, collaboration with employees is assumed to have a positive effect on some innovative services. On the other hand, employees also learn and provide insights through the customers’ needs who are already collaborating with them and give suggestions on the issues in which they already experienced (Santos-Vijande et

al., 2016). Furthermore, employees who learn via observations, like front-line employees, are capable to efficiently express their knowledge only in certain situations relating to straight forward problems (Argote et al., 2003).

ii. Knowledge Integration Mechanisms

Knowledge which is gathered from outside resources from business partners and customer is usually not instantly available for utilization during innovative services due to insufficient mechanisms of sharing and integrating all related information within the organization (Marinova, 2004). The mechanism of knowledge integration which is assumed to be the formal structures and processes that help to gather, analyze and integrate several kinds of knowledge and the dispersion of such knowledge among various departments. This enhances the capability of an organization with knowledge of the market to generate useful novel services (Sheremata, 2000), and support and exploits the knowledge acquired for competitive advantage (Zahra & Nielsen, 2002). The importance of knowledge integration mechanisms is also implied by service dominant logic because it assumes the renewal of knowledge as the basic source of significant competitive advantage through novelty (Lusch et al., 2007).

The effects of knowledge integration mechanisms on novel services are more towards radicalness. Research shows that the actual processes of knowledge integration mechanisms are not useful for exploiting tacit and sophisticated knowledge for generating novel ideas (Nonaka, 1991). Furthermore, other scholars in product innovation suggest that the mechanisms of knowledge integration catalyze the relationship between outcomes of innovation and the knowledge of the organization,

particularly for intense knowledge dimensions (for example complexity and sophistication of knowledge) (Luca & Atuahene-Gima, 2007).

2.4 Service Innovation

The growth of service industries has proliferated the interest of researchers in service innovation (Siddike & Kohda, 2013). Even though the identification of innovation in service is challenging, it is kind of interesting that several research studies particularly focus on services innovation. Conversely, several research contributions strain the opinion of Schumpeterian innovation or explain in fact the part of service industries in the systems of innovation (Flikkema, Jansen & Van Der Sluis, 2007).

Fichman (2004) defines innovation as 'the initiation, adoption, and implementation of ideas or activities that are new to the adopting organization.' It involves recognizing and utilizing the available opportunities to develop innovative services, products, or practices of work (Witell et al., 2015). Howells (2010) explained that whenever a service organization faces intense competition, they consider their growth strategy through practicing service innovation. Previous research on service innovation proposed that service was related to itself a product or have an essential component of a product and should be categorized as a new development in products for service organization (Easingwood, 1986; Hipp, 2010; Tether, 2005). However, Blazevic and Lievens (2004) argued that several other researchers have proposed that communications and project learning are critical to the development of services. Consequently, to seek new markets, organizations should implement particular innovation practices in services to monitor the performance of employees, manage the

experience of customers, provide innovation in managerial processes and develop scalar business models (Berry, Sweeting & Goto, 2006).

Review of the service innovation literature indicates two different directions in the innovation journey (De Jong & Vermeulen, 2003). The first direction was proposed by researchers from Europe including Gallouj, and their work was interspersed and gathered in a handbook (Faïz Gallouj & Djellal, 2010). On the other hand, few focused-on issues related to managerial positions (Den Hertog, 2000; Hipp, 2010; Sundbo, 1997); however, most researchers viewed innovation from a broader perspective (Howells, 2010) by emphasizing on the economic impacts (Cainelli, Evangelista, & Savona, 2004), policy making (Gallego & Rubalcaba, 2008; Faïz Gallouj & Djellal, 2010), and considering the innovation nature (Miles, 2008; Windrum & Garcia-Goni, 2008). The second direction had a less clear structure which emphasized on operations, management and marketing and such research was mainly done in the United States of America in a discipline-based style (Bitner, Ostrom & Morgan, 2008; H. W. Chesbrough, 2011).

Kindström et al. (2013) stated that "service innovation is a broad concept that encompasses a considerable number of distinct dimensions" out of which one of the dimensions is linked to processes. Furthermore, Witell et al. (2015) added this is one of the concepts aligned with innovation in services, as covered in this research.

Earlier approaches elaborating innovation in services particularly emphasize on information technology and significant contribution role in service industries (Ozer, 2000). These processes of innovation are related to the novel services, established by

the revolution of information technology (Barras, 1986; Lyytinen & Rose, 2003). In this scenario, Lyytinen and Rose (2003) explained the direct relation to the earlier research on waves or economic cycles, and the effects of both technological revolution and innovation; however, there is also a gap in understanding how non-technology service innovation happens in service industries.

Miozzo and Grimshaw (2005) explained that three sub-approaches could consider service innovation, (i) a traditional perspective which states that all the innovations are controlled by suppliers and further categorized by the utilization of technology, (ii) the "Lille school" which argues that innovation in services is always different that of innovation in manufacturing (Djellal & Gallouj, 2001; Faiz Gallouj, 2002), (iii) all the base of innovation which differs from the technological perspective should be further researched and compared in the same field to explore diversity (Tether∗, 2003). However, all the sub-approaches are no different and, in some way, are interlinked (Winter & Lasch, 2011).

Regardless of the improvement of services in the worldwide economy, economists assume services as problematic issues; but over the last decade, this perception has changed (Witell et al., 2015). Further research has shown that most contributions in the field of service innovation were done through economics (Siddike & Kohda, 2013) and further proof of such difference is gradually but certainly given by Faïz Gallouj and Djellal (2010). However, by the end of the 20th century, the major discussion focused on the generation of innovative service within service organizations (Beuren, Ferreira & Miguel, 2013; Hogan & Coote, 2014). Since then, numerous publications have proposed that services are less marginal, not only for economists but also for scholars in general and further areas can also be investigated.

Whereas, an important question that was raised several years ago, which is still valid "is not just whether services are innovative, but also whether (certain) services are critical for innovation in manufacturing and other industries" (Miles, 2000, 2008). This query elevates the debate beyond the limit described by generating innovative services within organizations and also aids the view of a service as a relevant process which affects value propositions (Mina et al., 2014).

Miles (2008) also focused on "the role the knowledge-intensive business services (KIBS) play in facilitating innovation." He mentioned that adequate communication is necessary to have significant interaction between customers and service providers. On the other hand, he particularly emphasized on the bi-directional rather than multi-directional relationships among the networks or organizations. Den Hertog (2000) also mentioned how knowledge intensive business services are co-creators of innovative services. He further highlighted that service innovation is considered as a process which can also be implied for manufacturing organizations to categorize among their products, and the interactions within the organization "can shape innovations." Similarly, to the services offered by an organization, it may affect the innovation processes of customers, and client feedback may also affect an organization's service propositions (Barrett et al., 2015). He further added that full flow of knowledge, irrespective of whether intangible or tangible, exists between customers and organizations. Several flows can be categorized as complex and have many processes, interactions, and passages (J. Spohrer & Maglio, 2008).

2.4.1 The Nature of Service Innovation

Innovation in services is a vast concept which incorporates a significant number of dimensions, which are explained by several researchers, including Edvardsson and Olsson (1996) and De Jong and Vermeulen (2003). Particular examples of innovation are the processes of service development (Kindström et al., 2013), organizational adaptation (Dickson, Ford, Neu & Brown, 2008), capability development (Gustafsson et al., 2010; Stauss, den Hertog, van der Aa & de Jong, 2010) and culture (Gebauer & Friedli, 2005). To get the firm grip on service innovation, organizations can take full benefit of the possible benefits of service innovation and can utilize the broad array of the constituent parts. However, De Jong and Vermeulen (2003) explored that many frameworks related to service innovation which is utilized in practice particularly focus on changes in the view of organization's service or on the service provision processes.

Innovation in services focused on developing novel concepts and services (Rubalcaba, Michel, Sundbo, Brown & Reynoso, 2012), which included how to develop novel ideas for the offering of services and generating customized options relating to requirements of customers (De Brentani, 1995). On the other hand, Salunke, Weerawardena, and McColl-Kennedy (2011) highlighted that innovation in service should affect, whether indirectly or directly, understanding of the value of development of new services and service innovation to both the customers and the organization. Other researchers explained innovation as the development of service characteristics (Faïz Gallouj & Weinstein, 1997).

The vague concept of service follows different features of service innovation, including appropriation and categorization of the uniqueness of services, customers regarded as co-creators, the heterogeneity of realities and customer requests and service output intangibility. As the service innovation characteristics are described, it is fundamentally clear that service innovation process is considered more or less ad hoc (Flikkema et al., 2007).

Miller, Fern, and Cardinal (2007) found that service innovation is critical as it permits the support of competitive advantage. However, Lyons, Chatman and Joyce (2007) stated that it reduces the risk of commoditization and Cainelli et al. (2004) supported that the service organization to take the lead among their competitors, generates several opportunities to enhance the efficiency and quality of the process of delivery and helps in developing the concepts of new services (Van der Aa & Elfring, 2002).

The significance of service innovation was noticeably characterized by several researchers as academic interest increased in the topic Boden and Miles (2000) but some concerns arose about the gap between research and practice, specifically how to mainly succeed in innovating services (Crevani, Palm & Schilling, 2011). As per the earlier research by Siddike and Kohda (2013), it is clear that service innovation, for many organizations, a management process. The process of service innovation can be explained as a group of stages including actions, activities, assessments which move the project forward from the idea stage to the final execution of the project (R. G. Cooper, 1994). It is a series of steps which starts with idea generation, followed by the stage of implementation, testing the prototype and planning the production to develop the final service and product.

All the stages of developing novel services have informal and formal activities which are meant to generate new business ideas through process and product innovations and new market developments. This indicates that innovation in service comprises the creativity of communication, power, organizational structure, financial conditions, resources and individuals (Goodale, Kuratko, Hornsby & Covin, 2011; Souza & de Fátima Bruno-Faria, 2013). The development of services generally does not utilize any strategically, defined line. There is a certain level of disorder in most successful projects in service innovation (Windrum & Garcia-Goni, 2008). However, there are some large steps which are quite vital in developing an innovative service, including generation of ideas, testing of concepts, assessment of technical feasibility, product testing, assessment of financial planning, test marketing, management of launch and life cycles (J. Spohrer & Maglio, 2008). Major steps are necessarily required to make sure of efficient accomplishment of the management team's intention.

Activities which are motivating and appropriately designed provide much help in the process of innovation (Froehle & Roth, 2007; Goodale et al., 2011). All such activities involve various kinds of resources; therefore, organizations must monitor the process of service innovation from a capacity and resource perspective (Eisenhardt & Martin, 2000).

Avlonitis, Papastathopoulou, and Gounaris (2001) described the two generally discussed classifications of innovation in services, which are process innovation and product innovation. According to the service context, Gadrey, Gallouj and Weinstein (1995) classified four categories of innovation in service: service product innovations, architectural innovations which un-bundle or bundle popular service products, innovations which are developed by altering the present service product and

innovations in the organization and processes for a current service product. In addition to this, Lyytinen and Rose (2003) explained the process of service innovation as services which (a) help the core administration (administrative process innovation) (b) assist functional processes (technological process innovation) (c) increase and support process of customer interface (technological service innovation) and (d) help operations and processes within an organization (technological integration innovation).

This present research categorizes the practices of innovation in services into two types: service process innovation or the development of delivery of services as explained by method, administration, functionality, or several other features; and service product innovation, or the development of service offerings/products as described by altering essential features of service or product. These classifications of service innovation are chosen to support this research, emphasizing on exploring the value co-creation behavior with service innovation.

i. Service Process Innovation

Process innovation involves the development or the producing of a novel method of production which includes an innovative procedure to execute the services commercially (Becker & Egger, 2013). This can be implemented in the whole process of the value chain development, including processing of data, manufacturing, and service delivery (Souza & de Fátima Bruno-Faria, 2013).

Implementing communications and information technology may have significant

positive effects on the processes of internal operations, along with the processes of external cross-enterprise which combine the processes of value co-creation and organization (Yassine, Sreenivas & Zhu, 2008).

The focus towards the business performance increases the responses from the organization to their customers based on their requirements, which ultimately decreases the communication gap and helps customers to monitor the desired delivery of service (Hogan & Coote, 2014). Externally, not only can organizations improve the speed of delivery and the progress visibility, but they can also take the benefits of communications and information technology in modifying or designing new service processes (Avlonitis et al., 2001). These include mobile or web services for consultations and handling inquiries from customers, implementing purchasing through multi-channel features and improving after-sales services. Internally, processes improve the capabilities of service development and the efficiency of administration in decreasing the time for product design, lessen the number of prototypes required to be build and tested, reduces cost, enhances the quality (Karagozoglu & Brown, 1993) and increases coordination, communications and collaboration among other employees in the organization (Ozer, 2000).

ii. Service Product Innovation

Product innovation involves the development of a novel product or the enhanced quality of a current product (Löfsten, 2014) and in having improvement, production and advancement of new customers and services (Vermeulen & Dankbaar, 2002). In contrast to physical goods, services are relatively easier to reproduce and much harder

to secure from patents. Therefore, to remain competitive among service organizations, developing novel service products is a vital mission for organizations (K.-H. Chen, Wang, Huang & Shen, 2016). Implementing communication and information technology helps the marketing and production departments to develop many possibilities for general novel services (Vermeulen & Dankbaar, 2002). By focusing on business performance, including business intelligence and information management, this facilitates employees to access previous projects related to service innovation and also helps them to learn from past executed projects and develop better innovation services as per the requirements of customers (Schnurr, 2017). Torkzadeh, Chang, and Demirhan (2006) also further added that an organization could develop innovative services which are rightly matched with the demand of the market and can suggest advanced marketing services to fit the needs of customers. Mainly, the approaches of customization and direct marketing have been extensively utilized in the financial sector and communication and information technology (Avlonitis et al., 2001). It can support the organization to quickly identify the requirements of customers from profile analysis and regular interactions with employees and customers and hence deliver customized services and products.

2.5 Organizational Performance

Innovation is considered to be a significant influence on organizational performance in numerous aspects, including innovation speed, the number of innovations, etc. (Faiz Gallouj, 2002). On the other hand, Lichtenthaler (2016) explained that the most significant dimension of innovation is linked to the innovation speed which can be elaborated in two ways. Firstly, speed denotes the time required to introduce and

develop innovative products and services. Beuren et al. (2013) state that the usual life cycle of products and services is short and measured in months and the proficiency of developing novel services or frequently replacing products with new improved versions is necessary. This increases the pressure on organizations not only to launch novel products but also do it faster as compared to their competitors. The dimension of innovation speed (development of the new product) has been adopted in various research studies (A. C. Cooper, 1993; Ittner & Larcker, 1998; Kessler & Chakrabarti, 1996). However, Rogers (2010) explained that the speed of innovation is also related to how quickly an organization adopts new technology evolving in the market. This description is established on the five categorizations: innovators, early adopters, early majority, late adopters, and laggards. Furthermore, Subramanian and Nilakanta (1996) added that the innovation dimension is highly related to the continuity and consistency of organizations which innovate concerning time.

Organizations which are famous for innovating new products and are considered to be market-leaders do not ignore what their competitors are doing. Consequently, they develop novel products for their customers (Roberts, 1999). In spite of this, Deshpandé et al. (1993) and Banbury and Mitchell (1995) found that the innovation dimension is related to the capability and strategy of organizations to launch novel products into new markets. Sometimes, organizations even work to develop new markets in a common strategy related to the assumption of the advantages of first-movers (Patterson, 1993). Becker and Egger (2013) had their way to explain and stated that among several means to categorize the form or area, the dichotomization between the process and product is the most highlighted, even though sometimes this partition seemed confusing and blurred.

The significance of differentiating product innovation from process innovation is basically of the diverse effect which both these aspects may have on business performance (Becker & Egger, 2013; Ettlie, 1984; Hollenstein, 1996; Zairi, 1995). This research focuses on the relevance of using product innovation and process innovation towards service innovation and how it can be beneficial for business performance. The "closeness" between the process and product is stronger in-service organizations than in manufacturing organizations, because the customers' presence is the major factor which makes it more transparent and has a substantial effect on the customer perception in regard to the comprehensive service quality (Hibbert et al., 2012; Zeithaml et al., 1990).

The significant relation between business performance and service innovation has been explained in numerous research studies (Laukkanen, Nagy, Hirvonen, Reijonen & Pasanen, 2013; Miles, 2008; Mina et al., 2014). Deshpandé et al. (1993) conducted research among Japanese organizations and found that innovativeness has a significant effect on business performance relative to their share of the market, profitability and growth rate.

However, Dwyer and Mellor (1993) found in a research which they conducted in Australian organizations, that those organization which adopted a strategy of 'technical offence' had a greater percentage of effective outcomes of innovative services and products and accomplished the highest performance level relative to their perceived overall success, profitability of innovative projects and performance objectives. On the other hand, Baldwin and Johnson (1996) conducted a study among Canadian organizations which elaborated the positive effect on the innovation of various measures of business performance, which included return on investment and gain in market share. Another study by Salavou (2002) in Greece among SMEs in the

food industry also showed that innovation has a positive effect on the performance of business related to return on asset (ROA).

Numerous other researchers have also elaborated the impact of various forms of innovation and their dimensions on business. Yamin, Mavondo, Gunasekaran and Sarros (1997) mainly equated the effect of process innovation with product innovation on business performance concerning their return on investment (ROI), activities, leverage, and liquidity. Their result showed that the process innovation involves relatively better process management and knowledge. On the contrary, Subramanian and Nilakanta (1996) explained the various effects between innovation number and adoption of innovation on the measures of performance links with efficiency and effectiveness, in the finance industries. The results of their study showed that both times of adoption and number play a decisive role in examining the effectiveness of an organization. However, their results also showed that only the time of innovation adoption had a positive effect on the efficiency.

2.5.1 Service Innovation Performance

In this research, the performance of service innovation measures was established based on several research studies. Firstly, innovative performance is assumed to have many broad aspects of an organization (Cainelli, Evangelista & Savona, 2005; K.-H. Chen et al., 2016; Chong & Zhou, 2014; Santos-Vijande et al., 2016). Furthermore, Atuahene-Gima et al. (2005) elaborated that these innovation aspects can be captured by measurement using: innovation speed, innovation number, innovativeness level (newness) and aggressiveness level in generating or adopting the innovation.

Secondly, all four aspects were practically used throughout the two broad categories of process innovation and product innovation (Luca & Atuahene-Gima, 2007). Thirdly, the most important part is to use all developed aspects in all service organizations irrespective of their processes (Rebernik & Širec, 2007). Fourthly, service innovation performance measurement utilizes a perceptual or subjective approach (Ittner & Larcker, 1998). Such approach was previously used in other research studies by Avlonitis, Kouremenos, and Tzokas (1994) in which the authors assumed service innovation performance as a whole construct.

2.5.2 Business Performance Measure

Several measures were usually utilized to capture business performance; however, this research study focuses on the growth of sales, market share, and profitability (U. Grissemann, Plank & Brunner-Sperdin, 2013). All the data were gathered using this construct by getting details of such concepts.

Subjective measures may relate to its applicability in the service industries. However, several previous types of research have already used them to assess the internal organizational performance as well as the performance related to secondary data (Curkovic, Vickery & Dröge, 2000). Previous research also utilized subjective measures for business performance (Forker, Vickery & Droge, 1996; Tracey, Lim, & Vonderembse, 2005; Yamin et al., 1997). They were also advised that such an approach can provide significant insights.

2.6 Conclusions

Review of the literature in this chapter used three broad lenses innovation, value co-creation, and performance, to narrow down the literature body towards value co-creation behavior, dominant service logic, service innovation, service innovation performance and business performance. Each is a complex and vast field, so, for the present research, the reviews were focused on those highly relevant to the prescribed lenses. To elaborate the points, a comprehensive overview was discussed. Though service science and value co-creation is a relatively new area, research has been done to make them comprehensive and coherent. Numerous authors have conducted research to explain how such areas have impacts on different other fields, including academia and business. Research publications and books were cited all through this chapter, including the Handbook of Service Science by J. C. Spohrer and Maglio (2010), Management and Engineering: Education for the 21st century by Hefley and Murphy (2008). Such books integrate many research articles in the various areas, ranging from starting to the further developments in the respective fields including, operation, innovation, and design and suggests further opportunities for practice and research. Furthermore, several hundred research papers discussing the discipline of innovation have been reviewed, as published in numerous journals.

Also, a debate on dominant service logic, started by Vargo and Lusch (2004) but diligently aligned with the discipline of value co-creation, includes over 200 research papers, particularly in marketing journals. Also, over 30 research papers are mentioned in The Service Dominant Logic of Marketing: Dialog, Debate and Directions Vargo et al. (2010). In total, more than 600 research papers have been published in this area of research.

Several research articles from Journal of Service Science and Management, International Journal of Service Science, Journal of Service Science Research and others were reviewed for this research. Noticeably, the research outputs in the area of service innovation have been invaluable, producing significant benefits not only to researchers but also to practitioners as well. The present situation in value co-creation in services and business performance is much more multifarious and is the reason that these areas have been developed for a longer duration, and the research interest is quite wider. Usage of the above-mentioned diagram (Figure 2.2) which shows the lens for narrowing down the research and a review of the articles which are highly relevant to this research.

This research has identified three gaps during literature review and based on that; the author proposes the following research questions:

1. What are the values associated with Customer Value Co-Creation Behavior in an organization?
2. How does service innovation in-relation with service dominant logic affect the performance of business?
3. To what extent does service dominant logic enhance the organizational performance?

Chapter 3: Research Methodology

3.1 Introduction

The previous chapter developed the basis of a conceptual framework for the research model of this research. This chapter explains research design and research methods to achieve the objectives.

This chapter is further divided into seven sections as shown in Figure 3.1:

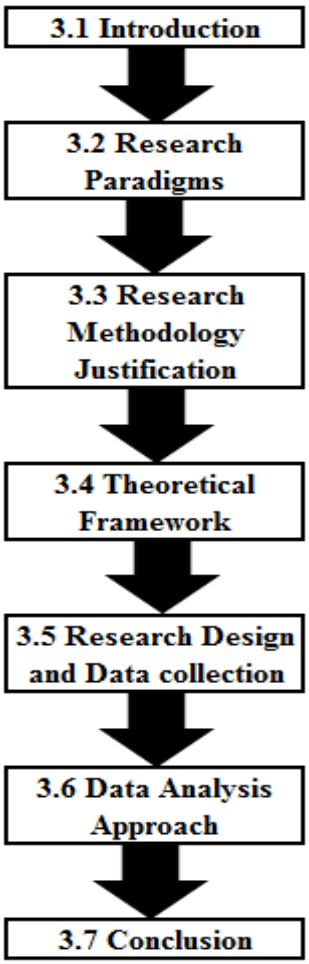


Figure 3.1 Structure of Research Methodology

Source: Developed for this research

3.2 Research Paradigms

Research paradigms give a basic framework to organize the research and theory and comprise fundamental assumptions, major issues, models of extensive research and procedure to seek answers (Mackenzie & Knipe, 2006). The paradigms of research can be divided into three types: ontology, epistemology, and methodology (Guba & Lincoln, 1991; Healy & Perry, 2000). Ontology is the category of philosophy which is related to the subject of existence or the basis of reality (Guba & Lincoln, 1991); Epistemology is another type of philosophy which relates to the source, nature, and parameters of human beings, and seeks the relationship between the researcher and reality (Guba & Lincoln, 1991); methodology is the more applied category of philosophy which relates to systems, methods, and rules to conduct research (Guba & Lincoln, 1991) and is a broader concept that combines to do rigorous research which is capable of being used by other researchers (Bun'ell & Morgan, 1979).

There are four major aspects of research which are Critical Theory, Realism, Constructivism and Positivism (Guba & Lincoln, 1991; Healy & Perry, 2000; Perry, Riege, & Brown, 1999). Perry et al. (1999) conceptualized their research based on the research of Guba and Lincoln (1991), as shown in table 3.1, elaborating the systems of belief in different paradigms concerning ontology, epistemology, and methodology.

Table 3.1 Enquiry Paradigms for Basic Belief Systems

Item	Positivism	Realism	Critical Theory	Constructivism
Ontology	Naïve realism: Reality is real and apprehensible	Critical realism: reality is 'real' but only imperfectly and probabilistically apprehensible and so triangulation from many sources is required to try to know it	Historical realism: 'virtual' reality shaped by social, economic, ethnic, political, cultural, and gender values, crystallized over time	Critical relativism: multiple local and specific 'constructed' realities
Epistemology	Objectivist: findings true	Modified objectivist: findings probably true	Subjectivist: value mediated findings	Subjectivist: created findings
Methodology	Experiments/surveys: verification of hypotheses: chiefly quantitative methods	Case studies/convergent interviewing: triangulation, interpretation of research issues by qualitative and quantitative methods such as structural equation modeling	Dialogic/dialectical: researcher is a 'transformative intellectual' who changes the social world within which participants live	Hermeneutical/dialectical: researcher is a 'passionate participant' within the world being investigated

Source: Perry, Riege, and Brown (1999)

3.3 Research Methodology and Justification

Commonly, there are two broad categories of research methodology: quantitative methodology and qualitative methodology. Mackenzie and Knipe (2006) concisely explained the differences between such methodologies, as shown in Table 3.2.

Table 3.2 Comparison of Quantitative and Qualitative Research

Quantitative Research	Qualitative Research
Test hypotheses that research begins with	Capture and discover meaning once the research becomes immersed in the data
Concepts are in the form of distinct variables	Concepts are in the form of themes, motifs, generalizations, and taxonomies
Measures are systematically created before data collection and standardized	Measures are created in an ad hoc manner and are often specific to the individual setting or researcher
Data are in the form of numbers from precise measurement	Data are in the form of words and images from documents, observations and transcripts
Theory is largely casual and is deductive	Theory can be causal or non-causal and is often inductive
Procedures are standards, and replication is frequent	Research procedures are particulate, and replication is very rare
Analysis proceeds by using statistics, tables, or charts and discussion how they show relates to hypotheses	Analysis proceeds by extracting themes or generalizations from evidence and organizing data to present a coherent, consistent picture

Source: Mackenzie and Knipe (2006)

3.3.1 Quantitative Methodology

Quantitative methodology is particularly related to conceptual design, sampling and measurement because empirical approach focuses on precise planning before the collection of data and analysis (Kreuger & Neuman, 2006). It is an approach which follows the paradigm of positivism and focuses on a researcher finding a result of single apprehensible reality related to the problem of the research. If the research is performed appropriately and is founded on observations and data, then the knowledge resulting from the research is trustworthy (Guba & Lincoln, 1991). It is the opposite approach to qualitative which is then used to generate reality with an inductive approach in which the findings are observed and results usually concluded by a deductive approach. Therefore, conclusions are drawn from logical

understandings about already existing information (Kreuger & Neuman, 2006).

It is usually used in casual or explanatory research focusing on particular research questions, a relatively larger sample size and in testing the models and theory (Kreuger & Neuman, 2006; Perry, 1995). Kreuger and Neuman (2006) also proposed that quantitative research seeks the answers to the research objectives. It is conducted independently, and the researcher is also not involved in the context. Numerous methods are used in quantitative research, including questionnaire surveys, experiments, interviews, and observations in which credibility can be identified by validity and reliability (Kreuger & Neuman, 2006).

3.3.2 Qualitative Research Methodology

Qualitative methodology is related to the context of assumptions and feeling about the data because of the inductive approach which focuses on making generalization and insights from the collected data. This methodology is usually used in critical or interpretive social science, which nonlinear approaches are commonly used (Kreuger & Neuman, 2006).

It is more often used in explorative research which does not have a particular emphasis on questions, a relatively small sample size and, most importantly, for the generation of theories (Kreuger & Neuman, 2006; Perry, 1995). Kreuger and Neuman (2006) suggested that qualitative research can be used to generate cultural meaning and social reality, giving particular attention to events and interactions, mixing data and theory. It is purely based on scenarios or situations which give various results. Qualitative

research uses various methods for data collection, including observations, interviews, case studies, action research and ethnography (Kreuger & Neuman, 2006). Guba and Lincoln (1991) mentioned that to achieve trustworthiness in the results, transferability, credibility, confirmability, and dependability should be the point of focus.

3.3.3 Justification of Selecting Quantitative Research Methodology

As discussed in the previous section of the research paradigms and the summary in table 3.1, for this research, positivism was chosen based on following reasons:

1. The major objective of this research study is to examine the relationship of the customer value co-creation behavior (CVCB), and it is also believed that everyone is somehow taking part in creating innovative services which are steady concerning context and time and is also measurable by research. This is aligned with the ontology position of positivism.

2. The aim of this research study is to develop a generalized theory which examines the exploration of CVCB with service innovation and service-dominant logic. This is aligned with the epistemology position of positivism.

3. This research study uses the theoretical model which is based on the extant literature, as reviewed in chapter 2. The model has nine hypotheses for finding out the exploration of customer value co-creation behavior with business performance and their correlations with service innovation, service-dominant logic, and service innovation performance. It mainly emphasizes on testing and measurement of the

theory. This requires a larger sample size, accurate analysis of data and quantitative methods, and is aligned with the purpose and nature of the quantitative approach.

Based on the evaluation of the ontology, epistemology, and methodology as discussed by different researchers like Guba and Lincoln (1991) and Healy and Perry (2000), positivist research paradigm is appropriate. The quantitative research methodology is usually linked with positivist research paradigms whereas the qualitative research methodology is often linked with critical/interpretive realism research paradigms (Kreuger & Neuman, 2006; Perry, 1995). Therefore, the methodology is selected for this research study is ‘Quantitative.'

3.4 The Theoretical Model

Based on the comprehensive review of the literature in the previous chapter, the model developed is based on the theoretical concept shown in Fig. 3.2. The research model has five constructs: Customer Value Co-Creation Behavior (CVCB), Service Innovation (SI), Service Dominant Logic (SDL), Service Innovation Performance (SIP) and Business Performance (BP).

The CVCB and SI are independent constructs which are used to find out the business performance while having SDL and SIP as mediators. The CVCB is the composition of Customer Participation Behavior (CPB) and Customer Citizenship Behavior (CCB). CPB consists of 4 factors, which are Information Seeking (ISK), Information Sharing (ISh), Responsible Behavior (RB) and Personal Interaction (PI). CCB consists of also 4 factors, which are Feedback (FB), Advocacy (AD), Helping (HP) and

Tolerance (TL) respectively (Yi & Gong, 2013). The SI is the combination of Production Innovation (Pd) and Process Innovation (Pr) (Zott, 2003). The SDL has 3 variables, which are Collaborative Competencies (CoC), Dynamic Capability (DC) and Knowledge Interfaces (KI). CoC consists of two factors, namely Customer Collaboration (CC) and Business Partner Collaboration (BPC); DC consists of 2 factors, namely Customer orientation (CO) and Innovation Orientation (IO); and KI consists of Employer Collaboration (EC) and Knowledge Interface Mechanism (KIM) (Ordanini & Parasuraman, 2011). The SIP and BP are single variable construct which consists of four and seven factors respectively (Martinez, Radnor, Radnor & Barnes, 2007; Menor & Roth, 2007).

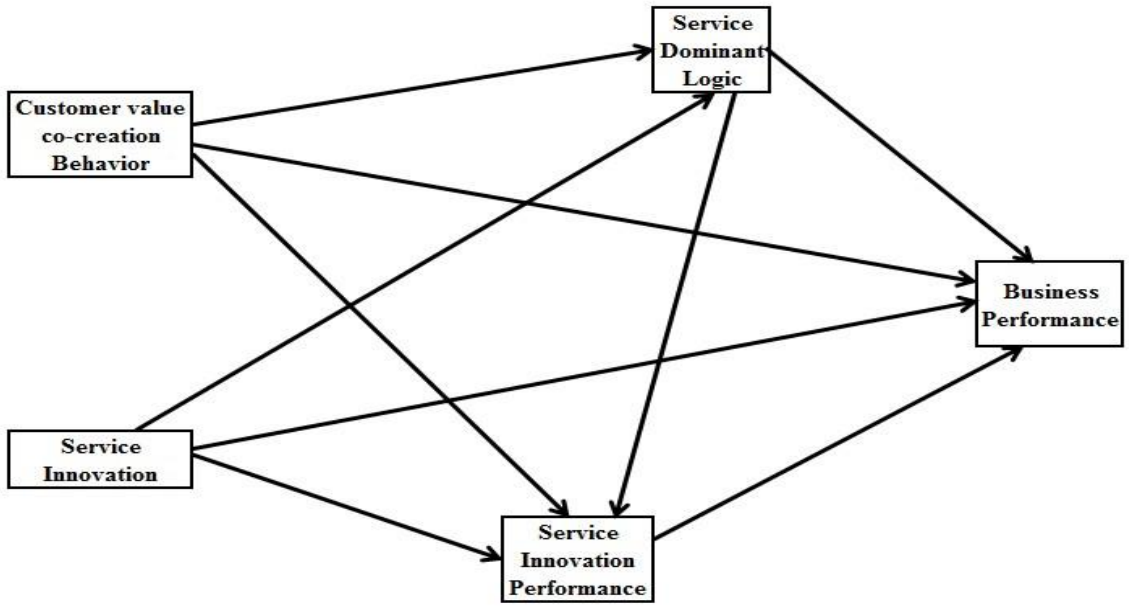


Figure 3.2 Theoretical Model

Source: Developed for this research

To find the answers to the research questions of this research, the following hypotheses are suggested:

H1: There is a positive correlation between Customer value co-creation behavior and service dominant logic (Vargo & Lusch, 2004, 2006, 2008; Vargo et al., 2010)

H2: There is a positive correlation between Service Innovation and service dominant logic (Ehrenthal, 2012; Lamberti & Paladino, 2013; Ordanini & Parasuraman, 2011)

H3: There is a positive correlation between Customer value co-creation behavior and service innovation performance (Jaakkola & Alexander, 2014; Li, Luk, & Liu, 2016; Yi & Gong, 2013)

H4: There is a positive correlation between Service Innovation and service innovation performance (Cainelli, Evangelista, & Savona, 2005; K.-H. Chen, Wang, Huang, & Shen, 2016; Ittner & Larcker, 1998)

H5: There is a positive correlation between Service Dominant Logic and service innovation performance (Ordanini & Parasuraman, 2011; Skålén, Gummerus, von Koskull, & Magnusson, 2015; Vargo & Lusch, 2008)

H6: There is a positive correlation between Customer value co-creation behavior and business performance (Grissemann, Plank, & Brunner-Sperdin, 2013; Jaakkola & Alexander, 2014; Laukkanen, Nagy, Hirvonen, Reijonen, & Pasanen, 2013; Li et al., 2016; Tracey, Lim, & Vonderembse, 2005)

H7: There is a positive correlation between Service Innovation and business performance (Berry, Sweeting, & Goto, 2006; Y.-S. Chen, Lai, & Wen, 2006; Hogan

& Coote, 2014)

H8: There is a positive correlation between Service Dominant Logic and business performance (Day, 2006; Ehrenthal, 2012)

H9: There is a positive correlation between Service Innovation Performance and business performance (Blazevic & Lievens, 2004; Cainelli et al., 2005; K.-H. Chen et al., 2016; Vincent, Bharadwaj, & Challagalla, 2004)

3.5 Research Design

The research design is an overview of the whole plan to specify the procedures and methods which will be used in collecting and analyzing the data. This will establish the answers to the research questions, as shown in figure 3.3, related to the study purpose (descriptive, exploratory, testing of hypotheses), location (setting of study), investigation type, the scope of inference of research, timeline, measurement analysis, size of samples, method of data collection and measurements (Sekaran, 2003).

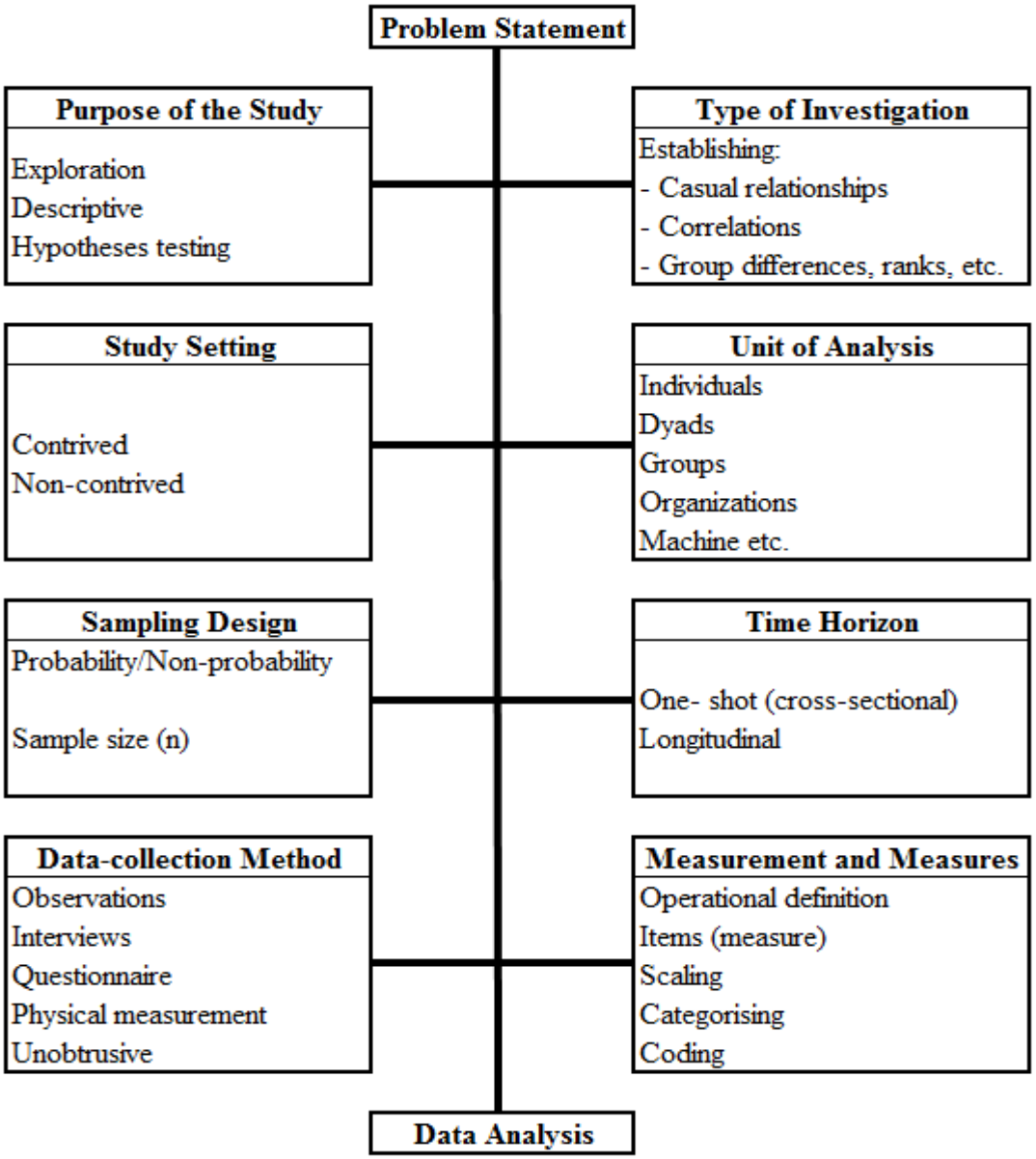


Figure 3.3 Research Design

Source: Sekaran (2003)

3.5.1 Purpose of the Study

Sekaran (2003) explained the purpose of study in various types of research: includes descriptive research, exploratory research, predictive (hypotheses) research and case studies. Conversely, D. R. Cooper, Schindler, and Sun (2003) described that the major types of research are descriptive/predictive, exploratory and casual (explanatory).

This research is a blend of descriptive, exploratory and casual (testing of hypotheses) study. The explorative study was initially conducted by comprehensive review of the literature as deliberated in Chapter 2, which led to the development of conceptual model and hypotheses for this research. The research questionnaire and various statistical analysis tools were utilized for the explorative study. The testing of the hypotheses was conducted by different statistical analyses including reliability testing, factor analysis, Pearson correlations and subsequently, used structural equation modeling for confirmatory factor analysis.

3.5.2 Type of Investigation

According to Davis (2005), investigations are of two types: casual or co-relational study. This research was used to basically explain the relationship between customer value co-creation behavior and service innovation on business performance. Therefore, the co-relational study was selected for this research.

3.5.3 Study Setting

The study setting is the environment in which the research is conducted, and it is necessary to explain how to collect and analyze the data. The study setting is considered to be contrived or non-contrived, and research related to co-relations is customarily conducted in non-contrived study settings (Sekaran, 2003). The contrived study setting is particularly for research which involves experimental work, including factory experiments, laboratory work.

The objective of this research is to get generalizability of the results of the collected data; that's why the study setting for this research is non-contrived. Furthermore, the targeted respondents were not limited to any particular industry, gender, education level, or working experience but focused on the participation of top management, research, and development staff and frontline staff who are particularly involved in the development of novel services or in improving existing services.

3.5.4 Unit of analysis

The unit of analysis gives the aggregation level of the collected data during the consequent stage of the data analysis (Davis, 2005). In this research, customer value co-creation behavior is the subject of analysis, to get a comprehensive overview of the responses from customers, then individual responses from employees.

3.5.5 Sampling Design

For research, it is basically not possible to gather the required data from the whole population by using the survey questionnaire. The survey questionnaire is usually used to collect the data from a defined population of comparatively large sample size (Kerlinger, 1973).

The method of sampling can be categorized into two broad types: probability sampling and non-probability sampling. Zikmund (2003) suggested various methods of sampling which may be used by researchers to collect the data, as per their

requirements, which includes random sampling, convenience sampling, probability sampling, quota sampling, stratified sampling, snowball sampling and judgment sampling.

Davis (2005) referred to five concerns while selecting an appropriate sampling method based on requirements: accuracy, cost, time, result acceptance and generalizability. The target respondent requirement is discussed in the earlier section so that the employees from various service organizations are appropriate for this research. To get better generalizability of the results, a simple random sampling method was selected for the target respondents.

i. Sampling Size

The size of the sample has a noticeable effect on the confidence level and precision of research. Zikmund (2003) suggested four ways for selecting the size of sample: (1) a 30 to 500 sample size is appropriate for most research studies (2) if samples are categorized into sub-samples then a minimum sample size of 30 is necessary for every sub-group (3) the size of sample must be numerous times as big as number of variables in multivariate research study (4) a sample minimum of 10 to 20 is suitable for basic research involving experiments.

To employ Structural Equation Modeling (SEM), Hair, Anderson, Babin, and Black (2010) suggests guidance in selecting the minimum sample size, depending on the measurement model characteristics and complexity of the model, as in the following Table 3.3.

Table 3.3 Minimum required sample selection

Model Characteristics (No. of latent constructs and items)	**Min. required sample**
Five or fewer constructs; each construct has greater than 3 items	100 sample
Seven or fewer constructs; each construct has greater than 3 items	150 sample
Seven or fewer constructs; some construct has less than 3 items	300 sample
More than seven constructs; some construct has less than 3 items	500 sample

Source: Hair, Anderson, Babin, and Black (2010)

As per the measurement model, the model has five constructs, and some constructs have less than three items to measure the responses from the participants; therefore, a minimum sample size of 300 is suitable for this research.

3.5.6 One-shot or Longitudinal study (Time Horizon)

A research study which is carried in one-time or through a period is called a one-shot or cross-sectional study, and a study which is performed more than one time is called a longitudinal study (Sekaran, 2003). This research was conducted as a one-shot study as it was used to determine the participant's experiences in value co-creation behavior of their customers along with the innovative designing of services with the top management and R&D employees.

3.5.7 Data Collection Method

The various methods of data collection include survey questionnaires, observations, and interviews (Sekaran, 2003). For quantitative methodology, a survey questionnaire is used. A survey questionnaire is a pre-generated written group of questions to which participants respond to closed ended questions (Sekaran, 2003). For qualitative methodology, interviews and observations are commonly used. An interview is a conversation with a definite purpose (Berg, Lune and Lune, 2004) and responses can be gathered through the speech of the interviewee, attitude, appearance, and emotion. Questions which are asked during the interview are open-ended and are followed by series of questions. It allows the researcher to have an in-depth conversation to be developed (Patton, 2005). An observation includes watching, paying particular attention and carefully listening to the conversation (Kreuger & Neuman, 2006). Further to surroundings, and observing people and their actions, observing observable characteristics: sex, age, race, and stature is undertaken (Lawrence, 2003). A questionnaire survey has several advantages when there are numerous questions to be asked of the respondents and belong to dispersed groups of industries; therefore, a survey questionnaire is selected for this research.

i. Survey Administration

Conventionally, the administration method of the survey questionnaire includes, mail, face-to-face and telephonic. Lately, conducting the survey online is very familiar and convenient. Based on the various survey methods' assessment, an online survey is chosen for this research. The survey questionnaire was developed online on the

university platform, and a web link was generated and sent to the targeted respondents in various service organizations, as mentioned in Appendix 1.

The following are the reasons for choosing an online survey questionnaire:

Global reach, short response time, flexibility, convenience, ease of data entry and analysis, low administration cost, question diversity, response quality, ease of follow up, control of answer order, required completion of answers and go to capabilities (Wright, 2005).

3.5.8 Measurement and Measure Design (Questionnaires Design)

As mentioned in section 3.4, there are nine hypotheses generated from the model to answer the research questions.

H1: There is a positive correlation between customer value co-creation behavior and service dominant logic

H2: There is a positive correlation between service Innovation and service dominant logic

H3: There is a positive correlation between customer value co-creation behavior and service innovation performance

H4: There is a positive correlation between service innovation and service

innovation performance

H5: There is a positive correlation between service dominant logic and service innovation performance

H6: There is a positive correlation between customer value co-creation behavior and business performance

H7: There is a positive correlation between service innovation and business performance

H8: There is a positive correlation between service dominant logic and business performance

H9: There is a positive correlation between service innovation performance and business performance

To test the hypotheses mentioned above, the survey questionnaire was generated as given in Appendix 1. The questionnaire was divided into 5 parts; part 1 was about the items related to customer participation behavior and customer citizenship behavior. Part 2 was about the items related to service innovation. Part 3 was about the items related to customer collaboration, business-partner collaboration, customer orientation, innovative orientation, employee collaboration and knowledge integration mechanism. Part 4 was about the items related to service innovation performance and business performance. Part 5 was about the demographic details of the respondents. Part 1 to part 4 was designed based on various research, as Lorelle Frazer and Lawley (2000)

suggested that the questions are easy to read, to the point, simple and should be within 12 pages. As Andrews (1984) suggested, each item of the questionnaire should have a maximum of 24 words. As Veal (2005) mentioned, ambiguities, leading questions and jargon must be avoided. As Veal (2005) mentioned, straightforward and important questions should be asked first. The survey questionnaire also contains an information sheet and a question asking for the consent of participants.

3.5.9 Pilot Survey

A pilot survey is the testing of a questionnaire which requires a small number of responses before collecting larger amounts of data (Zikmund, 2003). Veal (2005) mentioned that the principal purpose of conducting the pilot test is to examine the survey questionnaire wording, order, categorization, structure, time of completion and methods of analysis. D. R. Cooper et al. (2003) explained that pilot test is the last step in improving the questionnaire and the aim is to (i) determine methods to enhance participation, (ii) enhance the possibilities that respondents show their willingness to fill in the complete survey, (iii) determine a particular group of questions where training for researcher is required, and (iv) find methods to increase the quality of questionnaire data.

A pilot study was conducted in this research to improve the design of questionnaire survey. A random number of 50 participants were selected from various service industries, and 42 returned the completed survey along with comments. Furthermore, 6 academic professors were also asked to improve the design and structure of the questionnaire survey. Based on the received feedback on the survey including wording

and structure, the questionnaire survey was revised and is also attached in the appendix.

3.5.10 Summary of Research Design

The research design is summarized in figure 3.4 and is a combination of various research types, including exploring the concepts, description, and testing of hypotheses and correlations, and was selected as the type of investigation. The setting of the study was non-contrived, individual responses were selected as the unit of analysis, the method of sampling was simple random sampling, target participants were from the front-line employees, R&D employees and top management from various service industries in Hong Kong. It was a cross-sectional study using a 5-point Likert scale in the survey questionnaire. The data collection method was selected for the online survey questionnaire.

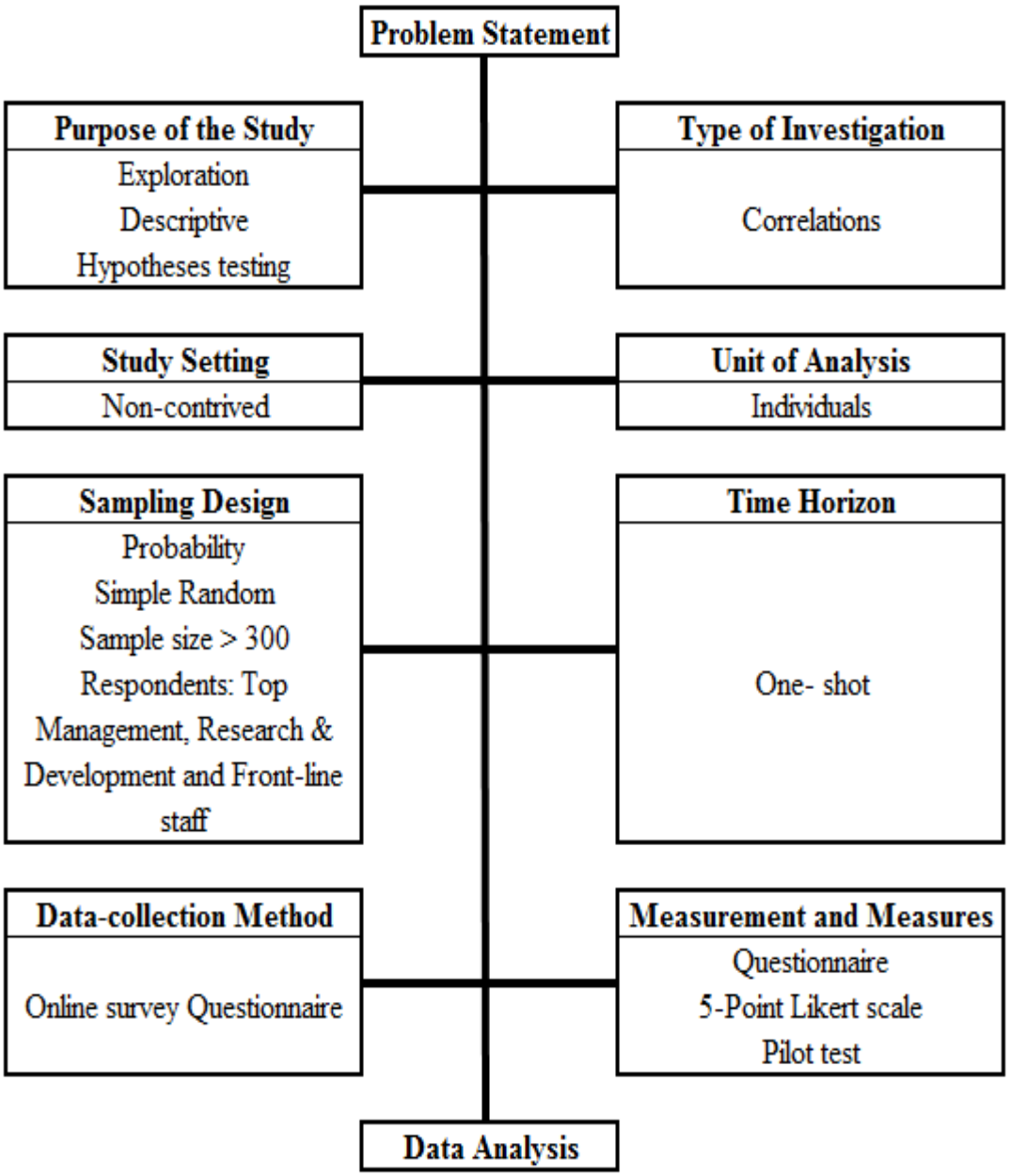


Figure 3.4 Summary of Research Design

Source: Developed for this research

3.6 Data Analysis Approach

The previous section, section 3.5, explained the design of the overall research and this section explains the procedure for data analysis and the techniques used in the research. Further details of the data analysis and results are explained in Chapter 4.

3.6.1 Data Analysis Tools

The data collection was done by using an online survey tool provided by The Hong Kong Polytechnic University, and the weblink was created by developing the survey questionnaire in the mysurvey platform. The URL for accessing the questionnaire is given below:

https://myacs.polyu.edu.hk/utils/mysurvey/index.php/189145/lang-en

The web link was sent to different organizations for their responses, and the survey was inactive once the required number of responses was received.

The responses collected from various participants were stored on the platform and could be accessed and data downloaded in .sav format. The data analysis was done by using SPSS version 22 for exploratory data analysis and by AMOS version 22 for confirmatory factor analysis.

3.6.2 Data Analysis Procedure

The procedure of data analysis was carried out in seven (7) steps, as shown in Figure 3.5:

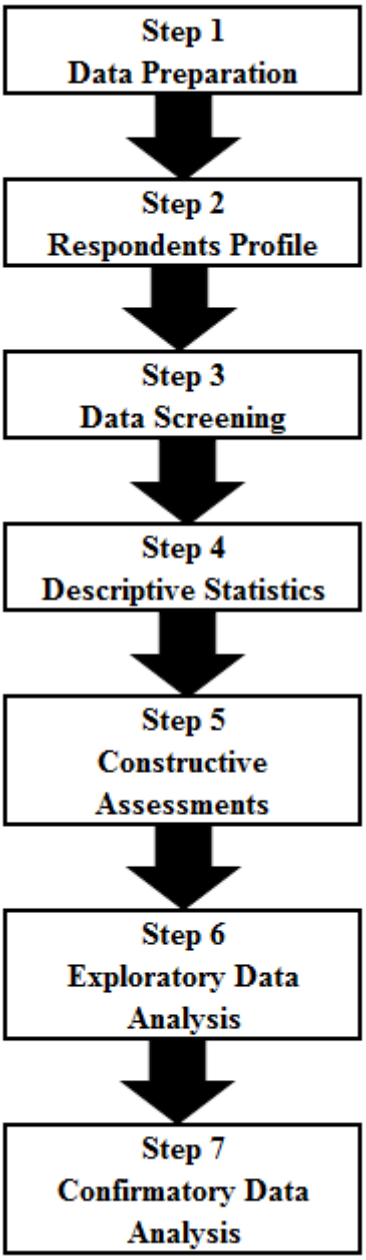


Figure 3.5 Data Analysis Procedure

Source: Developed for this research

(1) Data Preparation

This was the initial step in the analysis of data as it involves elimination of any existing errors and incomplete data, simplifying the vague data, checking for consistency and completeness, etc. to acquire a high standard of quality data for further data processing (D. R. Cooper et al., 2003; Davis, 2005). In this research, the researcher downloaded the whole data set which was received from various participants.

(2) Respondents Profile

The profile of respondents was the first part of the analysis to get an idea of the characteristics of the participants. This demographic information is mentioned in part 5 of the survey questionnaire and analyzed by the statistical concepts of the frequency and percentage.

(3) Data Screening

The screening of data was mainly focused on missing data and outliers in the data which were collected in part 1 to part 4 of the survey questionnaire, on the customer value co-creation behavior. Both univariate and multivariate outliers were examined from the collected data. For the outliers which fell under the category of univariate, box-plots, histograms and z-score were examined. For the outliers which fell under the category of multivariate, the Mahalanobis distance was examined and verified to

see if it exceeded the relative values of chi-square for the consequent degree of freedom. The data which showed missing values and significant problems of outliers were deleted from the final set of data before further analysis of data.

(4) Descriptive Statistics

Descriptive statistics showed wider understanding of the collected data. The survey questionnaire used a Likert 5-point scale from 1 to 5. The values calculated from the data were a minimum, maximum, mean and standard deviation. Values greater than 3 was assumed as significant or important.

(5) Constructs Assessment

Assessment of construct was used to examine the reliability, validity, and normality of composite variables which were generated for the analysis of the hypotheses in the following step. Principal Components Analysis (PCA) and Pearson correlations were used to assessing the validity. The Pearson correlations suggest that item-to-item correlations must be greater than 0.3 and item-to-total correlations must be greater than 0.5 (Hair et al., 1998). The PCA suggested that to keep an item or factor; the factor loadings must be greater than 0.6 and the eigenvalues greater than 1. For reliability testing, the coefficient of Cronbach's Alpha was used, and the acceptable value is greater than 0.7 (Hair et al., 1998). Z-score values did the assessment of the normality, and both kurtosis and skewness were checked to verify if they exceeded

2.58, which is the absolute value (samples >300) (Tabachnick, Fidell & Osterlind, 2001). Those constructs which did not meet such requirement were transformed to meet the required value.

(6) Exploratory Data Analysis

Exploratory data analysis was conducted to check the generalizability of the collected data for the verification of hypotheses in the confirmatory stage. ANOVA was used to test the generalizability as recommended by Manning and Munro (2004). It suggests that when the variables are ratio or scale types, ANOVA should be used to relate the variables.

(7) Confirmatory Data Analysis

The confirmatory data analysis was tested by structural equation modeling (SEM) (Byrne, 2016) which was used to test the model. It was conducted in two phases. The first testing was the measurement model and then the structural model. In the analysis of SEM, estimation of maximum likelihood (ML) was used. The goodness of fit was assessed by fitness index as follows:

Table 3.4 Goodness of Fit

Fit Index	Level of acceptance	Suggested by authors
Chisq/df	<5.0	Marsh and Hocevar (1985)
RMSEA	<0.08	Browne, Cudeck, Bollen, and Long (1993)
GFI	>0.90	Jöreskog and Sörbom (1984)
CFI	>0.90	Bentler (1990)
TLI	>0.90	Bentler and Bonett (1980)
NFI	>0.90	Bollen (1989)

Chapter 4: Findings and Data Analysis

4.1 Introduction

The previous chapter explained the research design background including justification of selected methodology, data collection instrument and method of data analysis. This chapter will explain the results of the data collection.

This chapter is further divided into ten sections as shown in Figure 4.1:

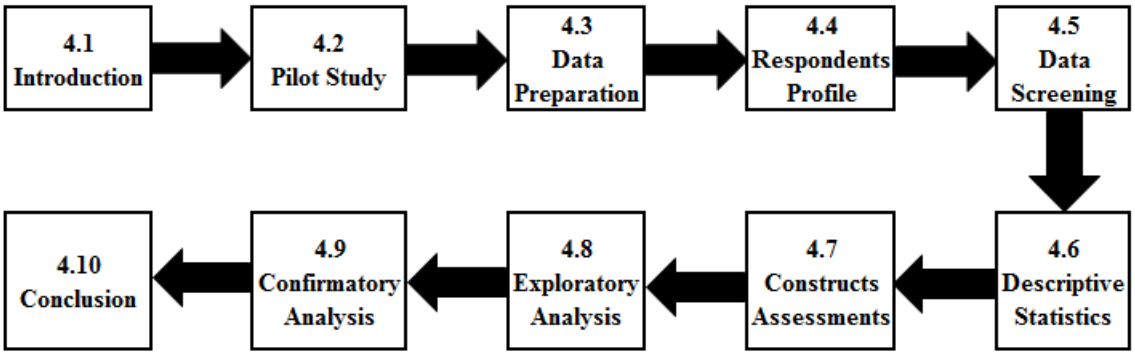


Figure 4.1 Structure of Findings and Data Analysis

Source: Developed for this research

4.2 Pilot Study

As mentioned in chapter 3, a random number of 50 respondents were selected from various service industries, and 42 returned the completed survey questionnaire.

The responses were examined by Cronbach's Alpha coefficient and Principal

Component Analysis (PCA). Based on Hair et al. (2010) that the construct is internally consistent when the item-to-item corrections are greater than 0.3 and the item-to-total is greater than 0.5; the reliability test by Cronbach's Alpha is greater than 0.7.

The results from the pilot study indicated that most of the constructs could meet the criteria and none of the items were removed from the survey questionnaire. This was due to the small number of selected responses for pilot study as the analysis could only give the preliminary evaluation of the survey questionnaire. In contrast, all the feedback and comments from the respondents and academic professors were taken into consideration, and the questionnaire was revised based on the feedback and suggestions gotten.

4.3 Data Preparation

It is an important task to remove the errors of the collected data before the data analysis Davis (2005) and Lawrence (2003) suggested a process for data preparation which includes gathering, cleaning and merging of data from the various data source into a single file. Atzmueller, Schmidt and Hollender (2016) suggested similar steps including editing, coding, transcribing and entry process to verify the data accuracy and their transformation from a raw form into a more appropriate form, which is suitable for further analysis. This research also followed this 3 steps approach.

Editing of data is a process to identify the errors in the collected data and rectify them to provide readability, clarity, completeness, and consistency of the gathered data (De Waal, Pannekoek & Scholtus, 2011). In this research, the data collection was done by

using the online survey tool, and a web link was created by developing the survey questionnaire in the mysurvey platform. A total of 869 responses were received out of which 401 responses were valid, and the incomplete responses were deleted from the final data set for analysis. The final valid responses from the participants were downloaded as a .sav format.

Coding of data is to transform the gathered data into numerical codes for the use of reassigning data to a medium for data storage and subsequent analysis (De Waal et al., 2011). In this research, coding of data was defined before data collection such that survey questionnaire was designed based on the planned coding scheme. All the items in the survey questionnaire to measure customer value co-creation behavior were used on a Likert scale of 5-point except the demographic section.

The entry of data transformed the collected data into a medium for handling and further analysis (D. R. Cooper et al., 2003). It was beneficial to use the online survey tool so that all the collected data could be directly downloaded without any further entry of the responses. This also reduced possible human errors in missing the data.

4.4 Respondents' Profile

The author sent the online survey questionnaire link with an invitation e-mail to the respondents of various service industries specifically to those belonging to the major service sectors in Hong Kong. There were total 869 respondents that submitted the questionnaire, and 401 were valid. The rate of completion (total valid samples/total respondents) was around 46% which is acceptable (Galesic, 2006).

The personal profile was gathered related to the Hong Kong service industries and their staff, particularly focusing on top management, research and development and front-line staff, including their gender, age, education, working experience, position in the organization, industry sector, organization type and size of the organization. Table 4.1 gives an overview of the profile of respondents.

Table 4.1 Demographics of respondents

Profile of respondents (n=401)		
Demographic Characteristics	**Frequency**	**Percentage**
Gender		
Male	245	61.1%
Female	156	38.9%
Age		
20 to less than 30	118	29.43%
30 to less than 40	156	38.90%
40 to less than 50	98	24.44%
50 to less than 60	29	7.23%
Education		
Postgraduate Diploma or Certificate Graduates	35	8.73%
Associate Degree or Higher Diploma Graduates	49	12.22%
Bachelor's Degree	127	31.67%
Master's Degree	178	44.39%
Doctoral Degree	12	2.99%
Work Experience		
Less than 2 years	22	5.49%
2 to less than 5 years	50	12.47%
5 to less than 10 years	98	24.44%
10 to less than 15 years	120	29.93%
15 to less than 20 years	56	13.97%
20 to less than 25 years	26	6.48%
25 to less than 30 years	19	4.74%
30 years or more	10	2.49%
Position in the organization		
Top management	88	21.95%
Front-line employees	198	49.38%
Research and Development employees	115	28.68%

Industry Sector		
Hotel and Tourism	89	22.19%
Trading, Logistics and Transportation	76	18.95%
Banking and Insurance	126	31.42%
Other Professional services	110	27.43%
Organization Type		
Public sector (e.g. Government)	25	6.23%
Private sector	281	70.7%
Non-profit sector	95	23.69%
Size of Organization		
10 – 99 employees	25	6.23%
100 - 249 employees	69	17.21%
250 – 399 employees	116	28.93%
400 + employees	191	47.63%

4.5 Data Screening

To ensure the data accuracy, data screening process is an important task that should be conducted to examine the gathered data for further analysis. The collected data should be free from any missing data, outliers and distributed (Tabachnick et al., 2001). This section is focused on identifying missing data and outliers.

4.5.1 Missing Data

Missing data is quite an omnipresent problem in the analysis of data. It commonly occurs when participants could not understand, or there was any vagueness in the question, or there was some information that the participants do not want to share. The importance of missing data relates to the pattern that why and how it is missing (Schafer & Graham, 2002). Missing data in this research corresponds to incomplete questionnaire responses (Malhotra, 2008; Manning & Munro, 2004).

After checking the collected data, a total of 461 out of 869 received responses were having significant missing data issue, and that means incomplete data were found in more than one section of various constructs. These 468 samples were deleted from the data, as recommended by Tabachnick et al. (2001).

4.5.2 Outliers

An outlier is a response with such beyond value as one variable or having a vague pattern of responses on several variables (Tabachnick et al., 2001). The extreme value related to one variable is known as a univariate outlier, and the absolute value related to multiple variables is known as the multivariate outlier (Kline, 2015). It is recommended to eliminate the outliers from the collected data as they may falsify the analysis (Hair et al., 2010; Tabachnick et al., 2001).

To identify the univariate outliers, boxplots, histograms, and z-score values were examined, but there were no outliers found in the data set. For the identification of multivariate outliers, the Mahalanobis distances were calculated by SPSS and verified with the chi-square value. There were 7 responses found as multivariate outliers. These responses were deleted from the data set, and ultimately 401 valid responses were used for further analysis.

4.6 Descriptive Statistics

This section shows the statistical analysis for the different variables which were used in the research model. The research model has five constructs: Customer Value Co-Creation Behavior (CVCB), Service Innovation (SI), Service Dominant Logic (SDL), Service Innovation Performance (SIP) and Business Performance (BP).

The CVCB is the composition of Customer Participation Behavior (CPB) and Customer Citizenship Behavior (CCB). CPB consists of 4 factors, which are Information Seeking (ISK), Information Sharing (ISh), Responsible Behavior (RB) and Personal Interaction (PI). CCB also consists of 4 factors, which are Feedback (FB), Advocacy (AD), Helping (HP) and Tolerance (TL) respectively.

The SI is the combination of Production Innovation (Pd) and Process Innovation (Pr). The SDL has 3 variables, which are Collaborative Competencies (CoC), Dynamic Capability (DC) and Knowledge Interfaces (KI). CoC consists of two factors, namely Customer Collaboration (CC) and Business Partner Collaboration (BPC); DC consists of 2 factors, namely Customer orientation (CO) and Innovation Orientation (IO); and KI consists of Employer Collaboration (EC) and Knowledge Interface Mechanism (KIM). The SIP and BP are the single variable construct. The descriptive statistics are reported in the following subsections.

4.6.1 Descriptive Statistics of Customer Value Co-Creation Behavior (CVCB)

The results show that the mean for ISk was 3.42 (SD = 0.89), ISh was 3.44 (S= 0.86), RB was 3.47 (SD = 0.85), PI was 3.77 (SD = 0.80), FB was 3.74 (SD = 0.83), AD was 3.72 (SD = 0.80), HP was 3.73 (SD = 0.81) and TL was 3.29 (SD = .92). All the values above 3 indicate that they were playing an important role in the customer value co-creation behavior.

Table 4.2 Descriptive Statistics of Customer Value Co-Creation Behavior (CVCB)

Variable	Factor	N	Minimum	Maximum	Mean	Std Dev
Customer Participation Behavior (CPB)	ISk	401	1	5	3.42	0.89
	ISh	401	1	5	3.44	0.86
	RB	401	1	5	3.47	0.85
	PI	401	1	5	3.77	0.80
Customer Citizenship Behavior (CCB)	FB	401	1	5	3.74	0.83
	AD	401	1	5	3.72	0.80
	HP	401	1	5	3.73	0.81
	TL	401	1	5	3.29	0.92

4.6.2 Descriptive Statistics of Service Innovation (SI)

The results show that the mean for Pr was 3.60 (SD = 0.79) and Pd was 3.05 (SD = .89). All the values above 3 indicates that they were playing a vital role in service innovation.

Table 4.3 Descriptive Statistics of Service Innovation (SI)

Variable	N	Minimum	Maximum	Mean	Std Dev
Pr	401	1	5	3.60	0.79
Pd	401	1	5	3.05	0.89

4.6.3 Descriptive Statistics of Service Dominant Logic (SDL)

The results show that the mean for CC was 3.40 (SD = 0.89), BPC was 3.26 (SD= 0.85), CO was 3.55 (SD = 0.91), IO was 3.67 (SD = 0.85), EC was 3.81 (SD = 0.81) and KIM was 3.37 (SD = .82). All the values above 3 indicates that they were playing a vital role in service dominant logic.

Table 4.4 Descriptive Statistics of Service Dominant Logic (SDL)

Variable	Factor	N	Minimum	Maximum	Mean	Std Dev
Collaborative Competences (CoC)	CC	401	1	5	3.40	0.89
	BPC	401	1	5	3.26	0.85
Dynamic Capability (DC)	CO	401	1	5	3.55	0.91
	IO	401	1	5	3.67	0.85
Knowledge Interfaces (KI)	EC	401	1	5	3.81	0.81
	KIM	401	1	5	3.37	0.82

4.6.4 Descriptive Statistics of Service Innovation Performance (SIP)

The result show that the mean for SIP was 4.23 (SD = 0.78), SIP2 was 4.27 (SD= 0.791), SIP3 was 4.38 (SD = 0.746) and SIP4 was 4.22 (SD = 0.797). The value above 4 indicates that it was playing a vital role in service innovation performance.

Table 4.5 Descriptive Statistics of Service Innovation Performance (SIP)

Variable	N	Minimum	Maximum	Mean	Std Dev
SIP	401	1	5	4.23	0.78

4.6.5 Descriptive Statistics of BP

The results show that the mean for BP was 3.91 (SD = 0.77). The value above 3 indicates that it was playing a vital role in customer collaboration.

Table 4.6 Descriptive Statistics of BP

Variable	N	Minimum	Maximum	Mean	Std Dev
BP	401	1	5	3.91	0.77

4.7 Constructs Assessment

This research has five constructs showing customer value co-creation behavior and service innovation on business performance.

The reliability and validity of constructs were examined by Cronbach's Alpha Coefficient and Principal Component Analysis (PCA) respectively. The testing of normality was also conducted to see if the transformation was necessary before applying multivariate analysis.

The EFA utilized Principal Components Analysis (PCA) and Pearson correlations. The Pearson correlations suggest that item-to-item correlations must be greater than 0.3 and item-to-total correlations must be greater than 0.5 (Hair et al., 1998). The PCA recommends that to keep an item or factor, the factor loadings must be greater than 0.6 and the eigenvalues greater than 1. For reliability testing, the coefficient of Cronbach's Alpha was used, and the acceptable value is greater than 0.7 (Hair et al., 1998).

The testing of normality is a standard requirement in multivariate analysis (Kline, 2015). The skewness and kurtosis were examined by SPSS and the score of z calculated for every composite variable. Z-score values checked the significance of skewness by dividing the skewness with the standard error of skewness (Tabachnick et al., 2001). For a sample size greater than 300, and the z-score values exceeding the absolute value of 3.29 then the data set is considered to be non-normal, and the skewness is significant (Tabachnick et al., 2001). The same test was conducted to test for any significant kurtosis.

The following sections further elaborate the construct assessments.

4.7.1 Customer Value Co-Creation Behavior

This main construct was divided into two sub-constructs which were Customer Participation Behavior (CPB) and Customer Citizenship Behavior (CCB). CPB consists of 4 factors, which are Information Seeking (ISk), Information Sharing (ISh), Responsible Behavior (RB) and Personal Interaction (PI). CCB also consists of 4 factors, which are Feedback (FB), Advocacy (AD), Helping (HP) and Tolerance (TL) respectively.

The composite variables were generated by averaging their respective factors. SPSS calculated the Pearson correlations and composite variable of the factors. The item-to-item correlations must be greater than 0.3, and item-to-total correlations must be greater than 0.5 (Hair et al., 1998). The results showed that item-to-item correlations of all the variables were greater than 0.3 ($p<0.01$) and the item-to-total correlations were greater than 0.5 ($p<0.01$), so none of the factors were removed.

All the values of KMO and Bartlett's test were also greater 0.6 which is also in the range of acceptable limit (Hair et al., 2010). Cronbach's Alpha calculated the reliabilities, and the outcome showed the acceptable values which are greater than 0.7 (Hair et al., 1998).

A normality tests of the values of the composite variables were conducted. Skewness and Kurtosis values were measured for the score distribution of the variable. Std divided the skewness value error of skewness to get a z-score value which was considered to be significant when it is greater than 3.29 ($p<0.001$) (Tabachnick et al.,

2001).

An exact method was also conducted to measure kurtosis to achieve z-score value. The Z-score value of skewness of ISK and PI were greater than 3.29 which showed the significant skewness, to get the non-significant z-score value for skewness, square root transformation was conducted. Table 4.7 below illustrates the summary of the results:

Table 4.7 Construct Assessment of Customer Value Co-Creation Behavior (CVCB)

Variables	Validity		KMO and Bartlett's Test	Reliability	Normality		
	Item-to-item >0.3 & item-to-total >0.5	Item removed		(Cronbach's Alpha)	z-score for skewness	z-score for kurtosis	Transformation
ISk	Yes	None	Adequate	0.787	-0.032	1.96	square-root transformation
ISh	Yes	None	Adequate	0.847	-1.139	0.23	None
RB	Yes	None	Adequate	0.853	-1.565	-1.96	None
PI	Yes	None	Adequate	0.86	0.721	1.897	square-root transformation
FB	Yes	None	Adequate	0.734	-0.901	1.7	None
AD	Yes	None	Adequate	0.707	-0.84	-0.049	None
HP	Yes	None	Adequate	0.793	-0.909	2.185	None
TL	Yes	None	Adequate	0.703	-1.03	1.59	None

4.7.2 Service Innovation

This main construct was divided into two sub-constructs which were process innovation and product innovation. The composite variables were generated by

averaging their respective factors. SPSS calculated the Pearson correlations and composite variable of the factors. The item-to-item correlations must be greater than 0.3, and item-to-total correlations must be greater than 0.5 (Hair et al., 1998). The results showed that item-to-item correlations of Pr were less than 0.3 ($p<0.01$) due to which one factor was removed to get item-to-item correlations of Pr greater than 0.3 ($p<0.01$) whereas and item-to-total correlations were greater than 0.5 ($p<0.01$), so one factor was removed.

All the values of KMO and Bartlett's test were also greater 0.6 which is also in the range of acceptable limit (Hair et al., 2010). Cronbach's Alpha calculated the reliabilities, and the outcome showed the acceptable values which are greater than 0.7 (Hair et al., 1998).

A normality tests of the values of the composite variables were conducted. Skewness and Kurtosis values were measured for the scores distribution of the variables. Std divided the skewness value error of the skewness to get the z-score value which was considered to be significant when it is greater than 3.29 ($p<0.001$) (Tabachnick et al., 2001). An exact method was also conducted to measure kurtosis to achieve z-score value. The Z-score value of skewness and kurtosis of Pr and Pd were less than the absolute value of 3.29 which showed that the normality is acceptable, and no transformation is required.

Table 4.8 Construct Assessment of Service Innovation (SI)

Variables	Validity		KMO and Bartlett's Test	Reliability	Normality		
	Item-to-item >0.3 & item-to-total >0.5	Item removed		(Cronbach's Alpha)	z-score for skewness	z-score for kurtosis	Transformation
Pr	Yes	Yes	Adequate	0.85	-1.13	0.127	None
Pd	Yes	None	Adequate	0.857	-0.262	-0.864	None

4.7.3 Service Dominant Logic

This main construct was divided into three sub-constructs: Collaborative Competencies (CoC), Dynamic Capability (DC) and Knowledge Interfaces (KI). CoC consists of two factors, namely Customer Collaboration (CC) and Business Partner Collaboration (BPC); DC consists of 2 factors, namely Customer orientation (CO) and Innovation Orientation (IO); and KI consists of Employer Collaboration (EC) and Knowledge Interface Mechanism (KIM).

The composite variables were generated by averaging their respective factors. SPSS calculated the Pearson correlations and composite variable of the factors. The item-to-item correlations must be greater than 0.3, and item-to-total correlations must be greater than 0.5 (Hair et al., 1998). The results showed that item-to-item correlations in some factors in BPC, CO and IO were less than 0.3 ($p<0.01$) due to which BPC2, CO1, CO2, CO9, IO1 and IO2 factors was removed to get item-to-item correlations greater than 0.3 ($p<0.01$) whereas and item-to-total correlations were greater than 0.5

(p<0.01), so six factors were removed.

All the values of KMO and Bartlett's test were also greater 0.6 which is also in the range of acceptable limit (Hair et al., 2010). Cronbach's Alpha calculated the reliabilities, and the outcome showed the acceptable values which are greater than 0.7 (Hair et al., 1998).

A normality tests of the values of the composite variables were conducted. Skewness and Kurtosis values were measured for the scores distribution of this variable. Std divided the skewness value error of the skewness to get the z-score value which was considered to be significant when it is greater than 3.29 (p<0.001) (Tabachnick et al., 2001). An exact method was also conducted to measure kurtosis to achieve z-score value. The Z-score value of skewness of CO and KIM were greater than 3.29 which showed the significant skewness, to get the non-significant z-score value for skewness, a square-root transformation was conducted. Below is the summary of the results:

Table 4.9 Construct Assessment of Service Dominant Logic (SDL)

Variables	Validity		KMO and Bartlett's Test	Reliability	Normality		
	Item-to-item >0.3 & item-to-total >0.5	Item removed		(Cronbach's Alpha)	z-score for skewness	z-score for kurtosis	Transformation
CC	Yes	None	Adequate	0.826	-3	0.33	None
BPC	Yes	Yes	Adequate	0.781	-0.5	1.53	None

CO	Yes	Yes	Adequate	0.827	-0.237	1.83	square-root transformation
IO	Yes	Yes	Adequate	0.749	-1.57	1.96	None
EC	Yes	None	Adequate	0.716	-1.81	1.01	None
KIM	Yes	None	Adequate	0.844	0.63	3.14	square-root transformation

4.7.4 Service Innovation Performance

The composite variable was generated by averaging their respective factors. SPSS calculated the Pearson correlations and composite variable of the factor. The item-to-item correlations must be greater than 0.3, and item-to-total correlations must be greater than 0.5 (Hair et al., 1998). The results showed that item-to-item correlations of all the variables were greater than 0.3 ($p<0.01$) and item-to-total correlations were greater than 0.5 ($p<0.01$), so none of the factors were removed.

All the values of KMO and Bartlett’s test were also greater 0.6 which is also in the range of acceptable limit (Hair et al., 2010). Cronbach's Alpha calculated the reliabilities, and the outcome showed the acceptable values which are greater than 0.7 (Hair et al., 1998).

A normality test of the values of the composite variable was conducted. Skewness and Kurtosis values were measured for the scores distribution of this variable. The skewness value was divided by std. error of skewness to get the z-score value which was considered to be significant when it is greater than 3.29 ($p<0.001$) (Tabachnick et al., 2001). An exact method was also conducted to measure kurtosis to achieve z-score value. The Z-score value of skewness of SIP was greater than 3.29 which showed the

significant skewness, to get the non-significant z-score value for skewness, log transformation was conducted. Below is the summary of the results:

Table 4.10 Construct Assessment of Service Innovation Performance (SIP)

Variables	Validity		KMO and Bartlett's Test	Reliability	Normality		
	Item-to-item >0.3 & item-to-total >0.5	Item removed		(Cronbach's Alpha)	z-score for skewness	z-score for kurtosis	Transformation
SIP	Yes	None	Adequate	0.767	-1.18	0.18	log transformation

4.7.5 Business Performance

The composite variable was generated by averaging their respective factors. SPSS calculated the Pearson correlations and composite variable of the factors. The item-to-item correlations must be greater than 0.3, and the item-to-total correlations must be greater than 0.5 (Hair et al., 1998). The results showed that item-to-item correlations of BP were less than 0.3 ($p<0.01$) due to which BP1, BP2, and BP factors were removed to get item-to-item correlations of BP greater than 0.3 ($p<0.01$) whereas and item-to-total correlations were greater than 0.5 ($p<0.01$), so three factors were removed.

All the values of KMO and Bartlett’s test were also greater 0.6 which is also in the range of acceptable limit (Hair et al., 2010). Cronbach's Alpha calculated the reliabilities, and the outcome showed the acceptable values which are greater than 0.7 (Hair et al., 1998).

A normality test of the values of the composite variable was conducted. Skewness and Kurtosis values were measured for the scores distribution of the variables. The skewness value was divided by std. error of skewness to get the z-score value which was considered to be significant when it is greater than 3.29 ($p<0.001$) (Tabachnick et al., 2001). An exact method was also conducted to measure kurtosis to achieve z-score value. The Z-score value of skewness and kurtosis of BP was less than the absolute value of 3.29 which showed that the normality is acceptable, and no transformation is required.

Table 4.11 Construct Assessment of Business Performance (BP)

Variables	Validity		KMO and Bartlett's Test	Reliability	Normality		
	Item-to-item >0.3 & item-to-total >0.5	Item removed		(Cronbach's Alpha)	z-score for skewness	z-score for kurtosis	Transformation
BP	Yes	Yes	Adequate	0.857	-3.26	4.62	None

4.8 Exploratory Data Analysis

The procedures to verify the reliability and validity of all five constructs were determined, as described in the previous section. The assumption of normality for multivariate analysis was also calculated for every construct, and those constructs that did not have a normal distribution were transformed. After such verification, the constructs were arranged for subsequent analyses.

4.8.1 Assessment of variation of mean score in different industries

ANOVA testing was conducted to see if different industries involved in this research had any significant differences in mean scores. The ANOVA test was performed by selecting construct variables as dependents and industry sectors as the factors.

The findings of the ANOVA test are shown in the following tables:

Table 4.12 ANOVA results of assessments of mean score in CVCB

		Sum of Square	df	Mean Square	F	Sig.
ISk	Between Groups	.111	3	.037	.066	.978
	Within Groups	223.697	397	.563		
	Total	223.808	400			
ISh	Between Groups	.123	3	.041	.081	.970
	Within Groups	202.066	397	.509		
	Total	202.189	400			
RB	Between Groups	2.542	3	.847	1.710	.164
	Within Groups	196.724	397	.496		
	Total	199.266	400			
PI	Between Groups	1.241	3	.414	.993	.396
	Within Groups	165.419	397	.417		
	Total	166.661	400			
FB	Between Groups	.958	3	.319	.714	.544
	Within Groups	177.646	397	.447		
	Total	178.603	400			
AD	Between Groups	.387	3	.129	.260	.854
	Within Groups	197.270	397	.497		
	Total	197.657	400			
HP	Between Groups	1.000	3	.333	.822	.483
	Within Groups	161.110	397	.406		
	Total	162.110	400			
TL	Between Groups	.184	3	.061	.116	.951
	Within Groups	210.373	397	.530		
	Total	210.557	400			

As shown in table 4.12, the ANOVA test was conducted on the construct of Customer Value Co-Creation Behavior among different industries. It has been demonstrated that none of the values differed as all the values are non-significant (p>0.05).

Table 4.13 ANOVA results of assessments of mean score in Service Innovation

		Sum of Square	df	Mean Squar	F	Sig.
Pr	Between Groups	1.037	3	.346	1.046	.372
	Within Groups	131.237	397	.331		
	Total	132.274	400			
Pd	Between Groups	1.586	3	.529	.768	.513
	Within Groups	273.402	397	.689		
	Total	274.988	400			

As shown in table 4.13, the ANOVA test was conducted on the construct of Service Innovation among different industries. It has been demonstrated that none of the values are differing as all the values are non-significant (p>0.05).

Table 4.14 ANOVA results of assessments of mean score in SDL

		Sum of Square	df	Mean Squar	F	Sig.
CC	Between Groups	2.803	3	.934	1.817	.143
	Within Groups	204.118	397	.514		
	Total	206.921	400			
BPC	Between Groups	.200	3	.067	.210	.890
	Within Groups	126.277	397	.318		
	Total	126.478	400			
CO	Between Groups	.532	3	.177	.477	.699

	Within Groups	147.782	397	.372		
	Total	148.314	400			
IO	Between Groups	2.208	3	.736	2.169	.091
	Within Groups	134.684	397	.339		
	Total	136.892	400			
EC	Between Groups	2.167	3	.722	1.721	.162
	Within Groups	166.661	397	.420		
	Total	168.828	400			
KIM	Between Groups	1.197	3	.399	.958	.412
	Within Groups	165.268	397	.416		
	Total	166.464	400			

As shown in table 4.14, the ANOVA test was conducted on the construct of Service Dominant Logic among different industries. It has been demonstrated that none of the values are differing as all the values are non-significant (p>0.05).

Table 4.15 ANOVA results of assessments of mean score in SIP

		Sum of Square	**df**	**Mean Squar**	**F**	**Sig.**
SIP1	Between Groups	1.140	3	.380	.639	.590
	Within Groups	236.221	397	.595		
	Total	237.362	400			
SIP2	Between Groups	.458	3	.153	.242	.867
	Within Groups	249.991	397	.630		
	Total	250.449	400			
SIP3	Between Groups	1.735	3	.578	1.040	.375
	Within Groups	220.888	397	.556		
	Total	222.623	400			
SIP4	Between Groups	2.615	3	.872	1.376	.250
	Within Groups	251.510	397	.634		
	Total	254.125	400			

As shown in table 4.15, the ANOVA test was conducted on the construct of Service Innovation Performance among different industries. It has been demonstrated that none of the values are differing as all the values are non-significant (p>0.05).

Table 4.16 ANOVA results of assessments of mean score in BP

		Sum of Square	df	Mean Squar	F	Sig.
BP1	Between Groups	4.349	3	1.450	2.377	.069
	Within Groups	242.090	397	.610		
	Total	246.439	400			
BP2	Between Groups	1.332	3	.444	.775	.509
	Within Groups	227.645	397	.573		
	Total	228.978	400			
BP3	Between Groups	.762	3	.254	.530	.662
	Within Groups	190.116	397	.479		
	Total	190.878	400			
BP4	Between Groups	1.880	3	.627	1.095	.351
	Within Groups	227.118	397	.572		
	Total	228.998	400			
BP5	Between Groups	.462	3	.154	.280	.840
	Within Groups	218.117	397	.549		
	Total	218.579	400			
BP6	Between Groups	2.646	3	.882	1.041	.374
	Within Groups	336.342	397	.847		
	Total	338.988	400			
BP7	Between Groups	2.019	3	.673	1.154	.327
	Within Groups	231.472	397	.583		
	Total	233.491	400			

As shown in table 4.16, the ANOVA test was conducted on the construct of Business

Performance among different industries. It has been demonstrated that none of the values are differing as all the values are non-significant (p>0.05).

From the findings of the ANOVA test, none of the constructs have significant differences between the mean scores.

4.8.2 Assessment of mean score differs among the different employee posts

ANOVA testing was conducted to see if the different posts of employees involved in this research had any significant difference in the mean scores. The ANOVA test was conducted by selecting construct variables as dependents and employee's posts as factors.

The findings of the ANOVA test are given in the following tables:

Table 4.17 ANOVA results of assessments of mean score in CVCB

		Sum of Square	df	Mean Squar	F	Sig.
ISk	Between Groups	.117	2	.059	.104	.901
	Within Groups	223.691	398	.562		
	Total	223.808	400			
ISh	Between Groups	2.679	2	1.339	2.672	.070
	Within Groups	199.510	398	.501		
	Total	202.189	400			
RB	Between Groups	.146	2	.073	.145	.865
	Within Groups	199.120	398	.500		
	Total	199.266	400			

PI	Between Groups	.081	2	.041	.097	.907
	Within Groups	166.579	398	.419		
	Total	166.661	400			
FB	Between Groups	.189	2	.095	.211	.810
	Within Groups	178.414	398	.448		
	Total	178.603	400			
AD	Between Groups	.334	2	.167	.337	.714
	Within Groups	197.323	398	.496		
	Total	197.657	400			
HP	Between Groups	.164	2	.082	.202	.817
	Within Groups	161.946	398	.407		
	Total	162.110	400			
TL	Between Groups	.198	2	.099	.187	.829
	Within Groups	210.359	398	.529		
	Total	210.557	400			

As shown in table 4.17, the ANOVA test was conducted on the construct of Customer Value Co-Creation Behavior among different employees' posts. It has been demonstrated that none of the values are differed as all the values are non-significant ($p>0.05$).

Table 4.18 ANOVA results of assessments of mean score in SI

		Sum of Square	df	Mean Squar	F	Sig.
Pr	Between Groups	.121	2	.061	.183	.833
	Within Groups	132.153	398	.332		
	Total	132.274	400			
Pd	Between Groups	.346	2	.173	.251	.778
	Within Groups	274.641	398	.690		
	Total	274.988	400			

As shown in table 4.18, the ANOVA test was conducted on the construct of Service Innovation among different employees' posts. It has been demonstrated that none of the values differ as all the values are non-significant (p>0.05).

Table 4.19 ANOVA results of assessments of mean score in SDL

		Sum of Square	df	Mean Squar	F	Sig.
CC	Between Groups	.374	2	.187	.360	.698
	Within Groups	206.547	398	.519		
	Total	206.921	400			
BPC	Between Groups	.072	2	.036	.114	.893
	Within Groups	126.405	398	.318		
	Total	126.478	400			
CO	Between Groups	.237	2	.118	.318	.728
	Within Groups	148.078	398	.372		
	Total	148.314	400			
IO	Between Groups	1.774	2	.887	2.613	.075
	Within Groups	135.118	398	.339		
	Total	136.892	400			
EC	Between Groups	1.332	2	.666	1.582	.207
	Within Groups	167.496	398	.421		
	Total	168.828	400			
KIM	Between Groups	.992	2	.496	1.193	.304
	Within Groups	165.472	398	.416		

As shown in table 4.19, the ANOVA test was conducted on the construct of Service Dominant Logic among different employees' posts. It has been demonstrated that none of the values are differing as all the values are non-significant (p>0.05).

Table 4.20 ANOVA results of assessments of mean score in SIP

		Sum of Square	df	Mean Squar	F	Sig.
SIP1	Between Groups	3.145	2	1.572	2.672	.070
	Within Groups	234.217	398	.588		
	Total	237.362	400			
SIP2	Between Groups	1.035	2	.517	.825	.439
	Within Groups	249.414	398	.627		
	Total	250.449	400			
SIP3	Between Groups	1.014	2	.507	.911	.403
	Within Groups	221.609	398	.557		
	Total	222.623	400			
SIP4	Between Groups	2.288	2	1.144	1.808	.165
	Within Groups	251.837	398	.633		
	Total	254.125	400			

As shown in table 4.20, the ANOVA test was conducted on the construct of Service Innovation Performance among different employees' posts. It has been demonstrated that none of the values are differing as all the values are non-significant (p>0.05).

Table 4.21 ANOVA results of assessments of mean score in BP

		Sum of Square	df	Mean Squar	F	Sig.
BP1	Between Groups	.068	2	.034	.055	.947
	Within Groups	246.371	398	.619		
	Total	246.439	400			
BP2	Between Groups	.238	2	.119	.207	.813
	Within Groups	228.740	398	.575		
	Total	228.978	400			
BP3	Between Groups	1.091	2	.545	1.144	.320

	Within Groups	189.787	398	.477		
	Total	190.878	400			
BP4	Between Groups	.908	2	.454	.792	.454
	Within Groups	228.089	398	.573		
	Total	228.998	400			
BP5	Between Groups	.186	2	.093	.170	.844
	Within Groups	218.392	398	.549		
	Total	218.579	400			
BP6	Between Groups	.126	2	.063	.074	.929
	Within Groups	338.862	398	.851		
	Total	338.988	400			
BP7	Between Groups	.271	2	.136	.231	.794
	Within Groups	233.220	398	.586		
	Total	233.491	400			

As shown in table 4.21, the ANOVA test was conducted on the construct of Business Performance among different employees' posts. It has been demonstrated that none of the values are differing as all the values are non-significant ($p>0.05$).

From the findings of ANOVA test, none of the constructs have significant differences between the mean scores.

4.9 Confirmatory Data Analysis by Structured Equation Modeling (SEM)

The analysis of Structural Equation Modeling (SEM) is intended to give a path using the confirmatory approach suggested by Byrne (2016), for investigation of the conceptual model of customer value co-creation behavior. SEM allows some procedures for the measurement of different variables and their inter-relationships. It

is a powerful statistical technique which works to examine the measurement model and structural model in simultaneous testing (Hoe, 2008).

In this part, the conceptual model was developed based on the relevant literature and the results of the collected data. A partial aggregation method was utilized, as suggested by Bagozzi and Heatherton (1994). In contrast with the total aggregation method, a partial method was utilized to evaluate the different models and also to retain the concept of a single variable (Hoe, 2008; von der Heidt & Scott, 2007). In the partial aggregation method, a composite variable can be generated from several individual items in a construct and can act as a single indicator for a construct (von der Heidt & Scott, 2007). For testing an overall model, the structural equation modeling approach for confirmatory factor analysis can be used. This method can give the practical results of every variable within a small matrix, has fewer interruptions from overall errors and showing better reliability (Hu & Bentler, 1999; Loehlin & Beaujean, 2017).

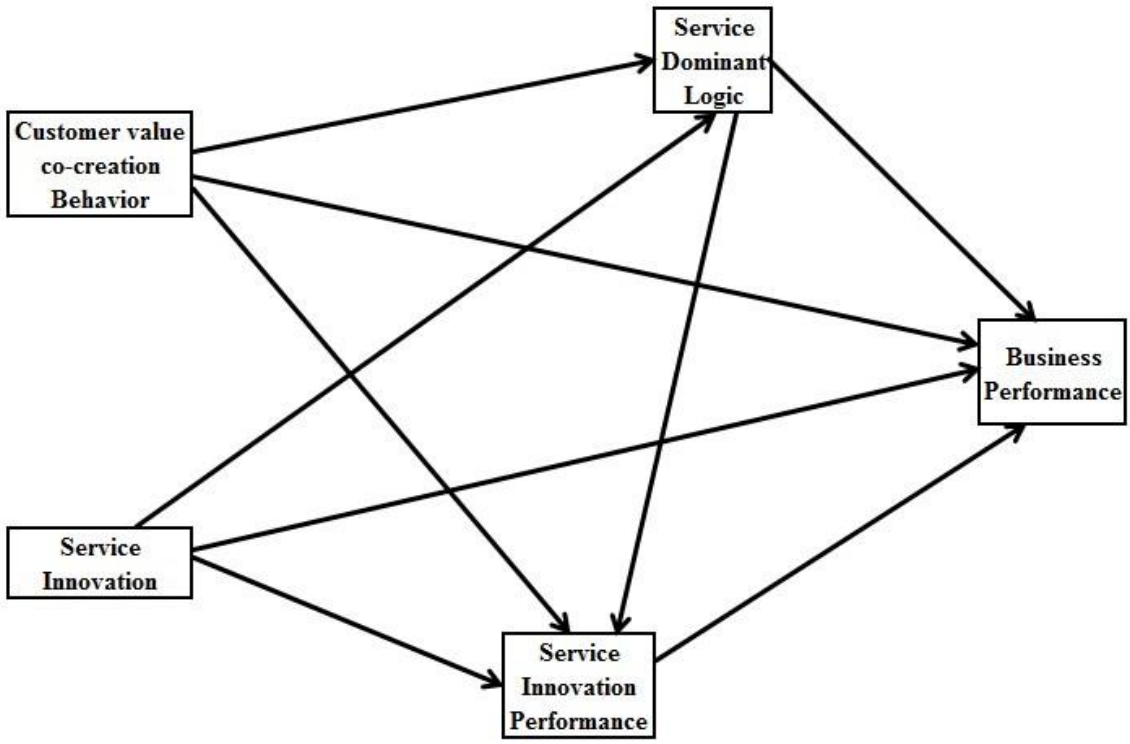


Figure 4.2 Theoretical Model

Source: Developed for this research

The conceptual model comprises of five constructs: customer value co-creation behavior (CVCB) and service innovation (SI) acted as independent variables, service dominant logic (SDL) and service innovation performance (SIP) acted as mediators, and business performance (BP) acted as a dependent variable. The CVCB is the composition of Customer Participation Behavior (CPB) and Customer Citizenship Behavior (CCB).

CPB consists of 4 factors, which are Information Seeking (ISk) which contains 3 items in the questionnaire, Information Sharing (ISh) which contains 4 items in the questionnaire, Responsible Behavior (RB) which contains 4 items in the questionnaire and Personal Interaction (PI) which contains 5 items in the questionnaire. CCB also

consists of 4 factors, which are Feedback (FB) which contains 3 items in the questionnaire, Advocacy (AD) which contains 2 items in the questionnaire, Helping (HP) which contains 4 items in the questionnaire and Tolerance (TL) which contains 3 items in the questionnaire respectively. The SI is the combination of Production Innovation (Pd) (which contains 4 items in the questionnaire) and Process Innovation (Pr) (which contains 7 items in the questionnaire). The SDL has 3 variables, which are Collaborative Competencies (CoC), Dynamic Capability (DC) and Knowledge Interfaces (KI). CoC consists of two factors, namely Customer Collaboration (CC) which contains 4 items in the questionnaire and Business Partner Collaboration (BPC) which contains 4 items in the questionnaire; DC consists of 2 factors, namely Customer orientation (CO) which contains 9 items in the questionnaire and Innovation Orientation (IO) which contains 5 items in questionnaire; and KI consists of Employer Collaboration (EC) which contains 3 items in the questionnaire and Knowledge Interface Mechanism (KIM) which contains 5 items in the questionnaire. The SIP and BP are single variable construct which contains 4 and 7 items in the questionnaire respectively. The analysis was conducted by AMOS version 22, by the prepared data in section 4.7.

4.9.1 Process of SEM Analysis

The SEM analysis is conducted in two models. The measurement model and the structural model. The measurement model explains the interrelationship among all constructs while the structural model explains the casual relationships (Byrne, 2016). This research also followed the suggested approach of Byrne (2016) and conducted the analysis in two phases. Phase 1 was to examine the measurement model, and phase

2 was to examine the structural model. Kline (2015) also mentioned that screening of data for SEM was also necessary for every multivariate analysis that contains the assessment of reliability, validity, and normality. The validity and reliability were examined in the measurement model, as explained in the following section.

In the SEM analysis, there are two ways to handle the non-normality of data. Kline (2015) suggested that one way was to undertake transformation and Byrne (2016) suggested that another way was to use the estimation approach when there is no assumption of normality e.g. the statistical approach of (Satorra & Bentler, 2011). This research used the approach of Kline (2015), and the transformation was conducted when any non-normal distribution was found in the previous section 4.7.

Maximum Likelihood (ML) estimation was chosen for this research. The sample range requirement was from 200 to 500 (Byrne, 2016; Hair et al., 2010; Kline, 2015). Therefore, the sample size used in this research was 401 which is appropriate.

4.9.2 The Measurement Model

Figure 4.3 below shows the measurement model. There are five latent variables in the model: Customer Value Co-creation Behavior, Service Innovation, Service Dominant Logic, Service Innovation Performance and Business Performance.

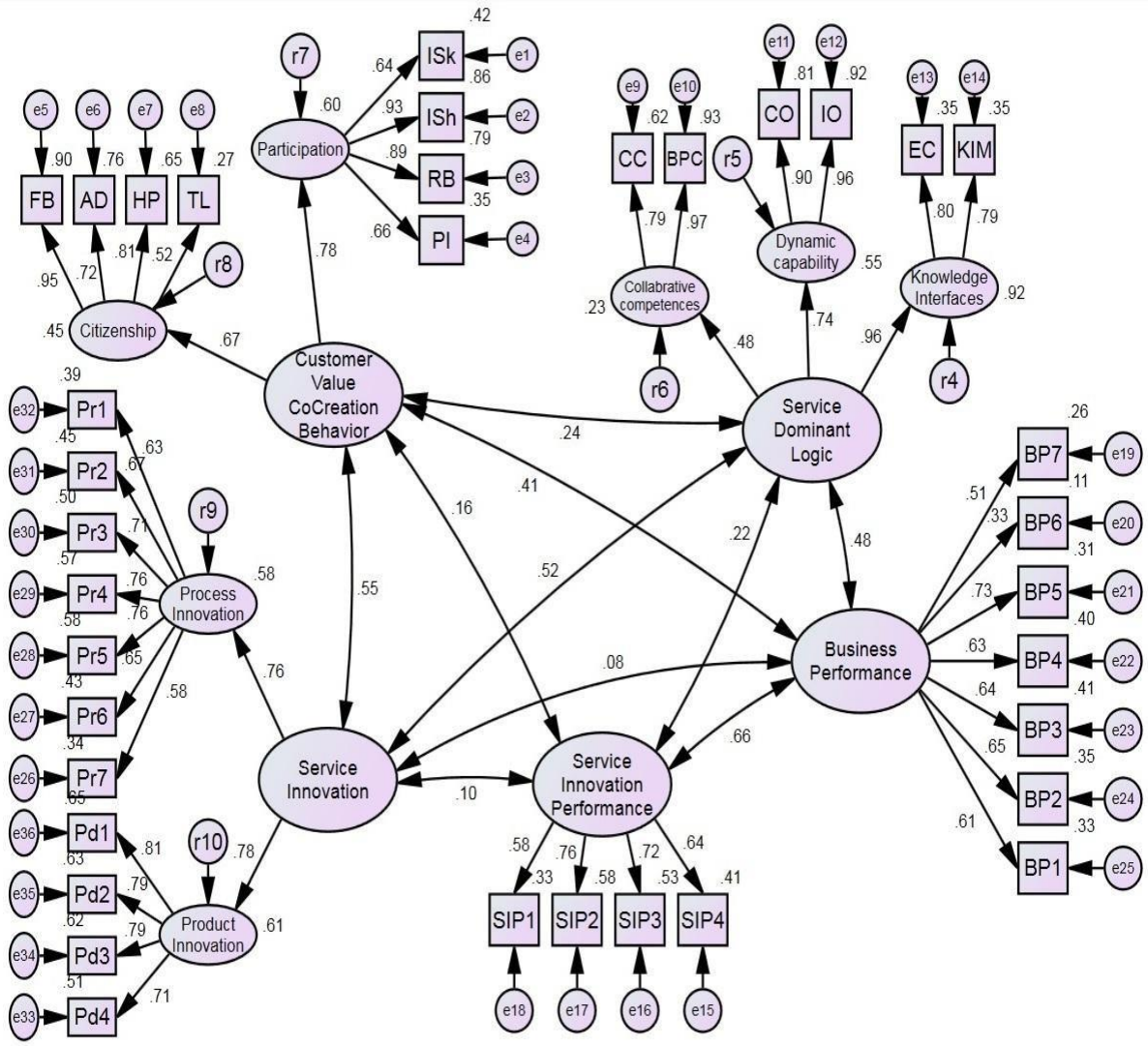


Figure 4.3 Results of Measurement Model

Source: AMOS

Table 4.22 Factor loadings in Measurement Model

Construct	Variables	Factor	Factor Loading
Customer Value Co-Creation Behavior (CVCB)	CPB	ISk	0.64
		ISh	0.93
		RB	0.89
		PI	0.66
	CCB	FB	0.95
		AD	0.72
		HL	0.81
		TL	0.52
Service Innovation (SI)	Pr	Pr1	0.63
		Pr2	0.67
		Pr3	0.71
		Pr4	0.76
		Pr5	0.76
		Pr6	0.65
		Pr7	0.58
	Pd	Pd1	0.81
		Pd2	0.79
		Pd3	0.79
		Pd4	0.71
Service Dominant Logic (SDL)	CoC	CC	0.79
		BPC	0.97
	DC	CO	0.90
		IO	0.96
	KI	EC	0.80
		KIM	0.79
Service Innovation Performance (SIP)		SIP1	0.58
		SIP2	0.76
		SIP3	0.72
		SIP4	0.64
Business Performance (BP)		BP1	0.61
		BP2	0.65
		BP3	0.64
		BP4	0.63
		BP5	0.73
		BP6	0.33
		BP7	0.51

Table 4.23 Fitness index results of Measurement Model

Fit Index	Level of acceptance	Results	Suggested by authors
Chisq/df	<5.0	2.26	Marsh and Hocevar (1985)
RMSEA	<0.08	0.074	Browne et al. (1993)
GFI	>0.90	0.826	Jöreskog and Sörbom (1984)
CFI	>0.90	0.906	Bentler (1990)
TLI	>0.90	0.861	Bentler and Bonett (1980)
NFI	>0.90	0.926	Bollen (1989)

The fitness index of the measurement model is shown in Table 4.23. The results were not fully supported as the values of RMSEA (0.074), GFI (0.826) and TLI (0.861) were not greater than the required values. In this case, the factor loadings which were less than 0.6 were deleted one by one.

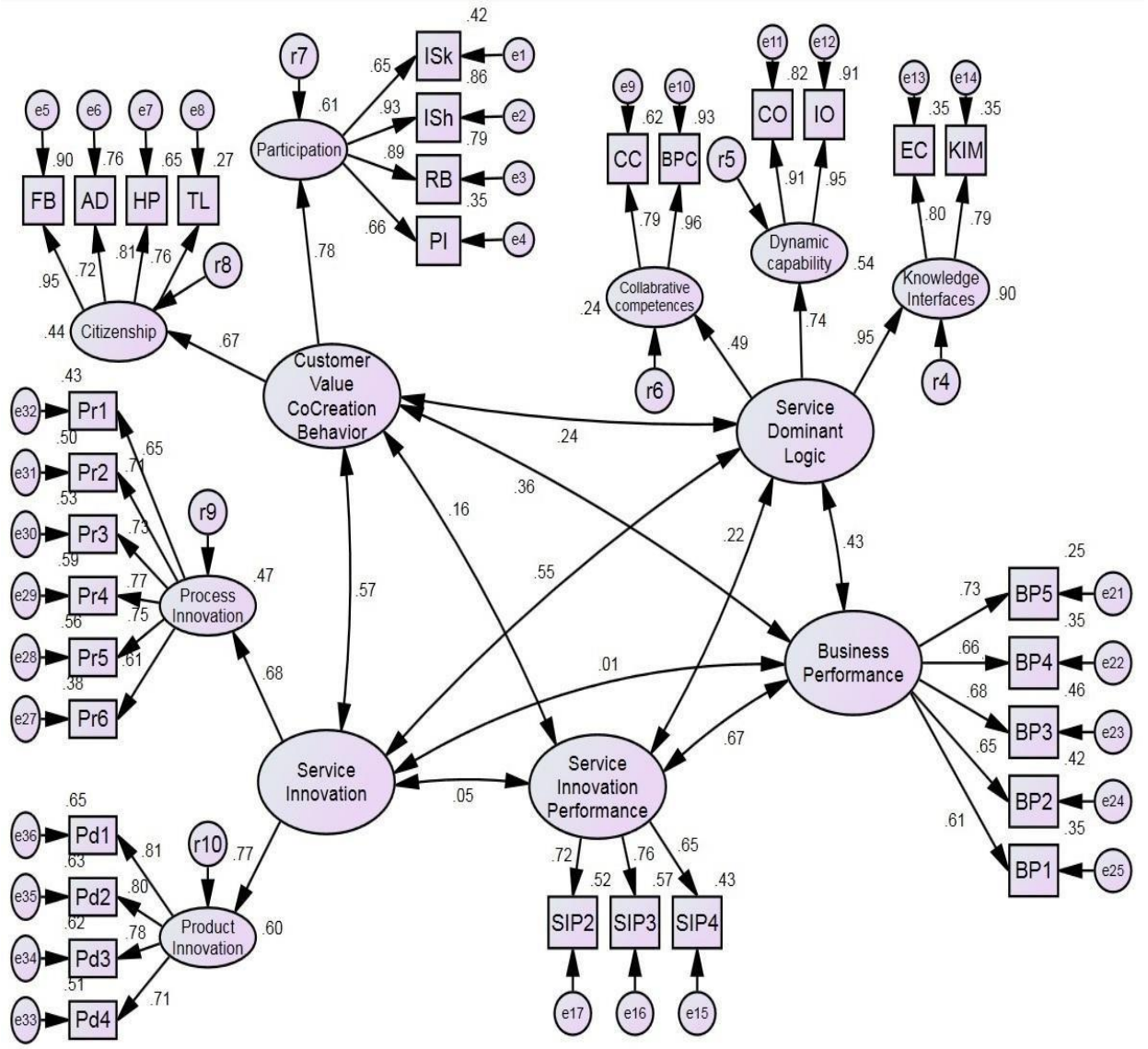


Figure 4.4 Results of Measurement Model after deleting some factors

Source: AMOS

Table 4.24 Factor loadings in Measurement Model

Construct	Variables	Factor	Factor Loading
Customer Value Co-Creation Behavior (CVCB)	CPB	ISk	0.65
		ISh	0.93
		RB	0.89
		PI	0.66
	CCB	FB	0.95
		AD	0.72
		HL	0.81
		TL	0.76
Service Innovation (SI)	Pr	Pr1	0.65
		Pr2	0.71
		Pr3	0.73
		Pr4	0.77
		Pr5	0.75
		Pr6	0.61
	Pd	Pd1	0.81
		Pd2	0.80
		Pd3	0.78
		Pd4	0.71
Service Dominant Logic (SDL)	CoC	CC	0.79
		BPC	0.96
	DC	CO	0.91
		IO	0.95
	KI	EC	0.80
		KIM	0.79
Service Innovation Performance (SIP)		SIP2	0.72
		SIP3	0.76
		SIP4	0.65
Business Performance (BP)		BP1	0.61
		BP2	0.65
		BP3	0.68
		BP4	0.66
		BP5	0.73

After deleting SIP1, BP6, and BP7 from the measurement model, as the factor loadings were less than 0.6, the fitness index of the measurement model is shown in Table 4.25.

The results were now fully supported as all the values were greater than the required level of acceptance.

Table 4.25 Fitness Index results of Measurement Model after deleting factors

Fit Index	Level of acceptance	Results	Suggested by authors
Chisq/df	<5.0	2.74	Marsh and Hocevar (1985)
RMSEA	<0.08	0.078	Browne et al. (1993)
GFI	>0.90	0.921	Jöreskog and Sörbom (1984)
CFI	>0.90	0.923	Bentler (1990)
TLI	>0.90	0.942	Bentler and Bonett (1980)
NFI	>0.90	0.953	Bollen (1989)

The CR and AVE values are shown in table below.

Table 4.26 CR and AVE results

	CR	AVE	SIP	BP	SI	SDL	CVCB
SIP	0.755	0.508	0.713				
BP	0.872	0.536	0.340	0.732			
SI	0.784	0.646	0.053	0.034	0.803		
SDL	0.852	0.662	0.224	0.455	0.280	0.813	
CVCB	0.841	0.727	0.162	0.180	0.140	0.210	0.853

4.9.3 The Structural Model

The testing and explanation of the measurement model are described in the Section 4.9.2. This section explains the structural model and the proposed hypotheses. The structural model is shown in figure 4.5.

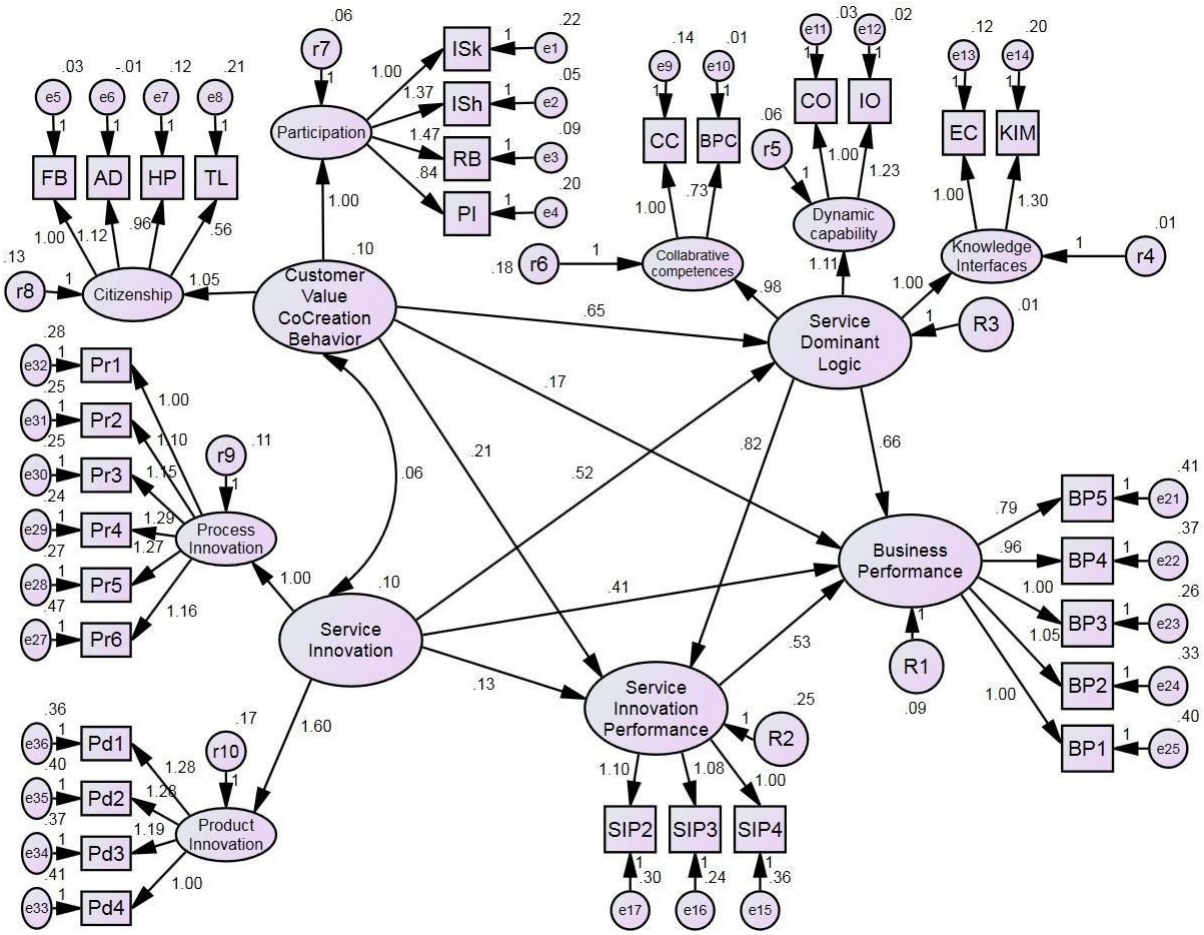


Figure 4.5 Results of Structural Model

Source: AMOS

4.9.3.1 Hypothesis H1: **There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Service Dominant Logic (SDL)**

This hypothesis explains the relationship between customer value co-creation behavior and dominant service logic. The results showed that the regression weight relating to CVCB and SDL was 0.65 ($p<0.05$ and CR=6.298), so CVCB was significantly related to SDL. Therefore, the hypothesis was supported.

4.9.3.2 Hypothesis H2: **There is a positive correlation between Service Innovation (SI) and Service Dominant Logic (SDL)**

This hypothesis explains the relationship between service innovation and dominant service logic. The results showed that the regression weight relating to SI and SDL was 0.52 ($p<0.05$ and CR=7.268), so SI was significantly related to SDL. Therefore, the hypothesis was supported.

4.9.3.3 Hypothesis H3: **There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Service Innovation Performance (SIP)**

This hypothesis explains the relationship between customer value co-creation behavior and service innovation performance. The results showed that the regression weight relating to CVCB and SIP was 0.21 ($p<0.05$ and CR=0.464), so CVCB was significantly related to SIP. Therefore, the hypothesis was supported.

4.9.3.4 Hypothesis H4: **There is a positive correlation between Service Innovation and Service Innovation Performance (SIP)**

This hypothesis explains the relationship between service innovation and service innovation performance. The results showed that the regression weight relating to SI and SIP was 0.13 ($p<0.05$ and CR=0.801), so SI was significantly related to SIP. Therefore, the hypothesis was supported.

4.9.3.5 Hypothesis H5: **There is a positive correlation between Service Dominant Logic (SDL) and Service Innovation Performance (SIP)**

This hypothesis explains the relationship between service dominant logic and service innovation performance. The results showed that the regression weight relating to SDL and SIP was 0.82 ($p<0.05$ and CR=1.382), so SDL was significantly related to SIP. Therefore, the hypothesis was supported.

4.9.3.6 Hypothesis H6: **There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Business Performance (BP)**

This hypothesis explains the relationship between customer value co-creation behavior and business performance. The results showed that the regression weight relating to CVCB and BP was 0.17 ($p<0.05$ and CR=0.499), so CVCB was significantly related to BP. Therefore, the hypothesis was supported.

4.9.3.7 Hypothesis H7: **There is a positive correlation between Service Innovation (SI) and Business Performance (BP)**

This hypothesis explains the relationship between service innovation and business performance. The results showed that the regression weight relating to SI and BP was 0.41 ($p<0.05$ and CR=2.928), so SI was significantly related to BP. Therefore, the hypothesis was supported.

4.9.3.8 Hypothesis H8: **There is a positive correlation between Service Dominant Logic (SDL) and Business Performance (BP)**

This hypothesis explains the relationship between service dominant logic and business performance. The results showed that the regression weight relating to SDL and BP was 0.66 ($p<0.05$ and CR=1.446), so SDL was not significantly related to SI. Therefore, the hypothesis was not supported.

4.9.3.9 Hypothesis H9: **There is a positive correlation between Service Innovation Performance (SIP) and Business Performance (BP)**

This hypothesis explains the relationship between service innovation performance and business performance. The results showed that the regression weight relating to SIP and BP was 0.53 ($p<0.05$ and CR=7.149), so SIP was significantly related to BP. Therefore, the hypothesis was supported.

Table 4.27 Hypotheses results

				Estimate	**S.E.**	**C.R.**	**P**	**Result**
H1	SDL	<---	CVCB	0.65	0.104	6.298	***	Significant
H2	SDL	<---	SI	0.52	0.071	7.268	0.015	Significant
H3	SIP	<---	CVCB	0.21	0.461	0.464	0.002	Significant
H4	SIP	<---	SI	0.13	0.166	0.801	***	Significant
H5	SIP	<---	SDL	0.82	0.592	1.382	0.006	Significant
H6	BP	<---	CVCB	0.17	0.351	0.499	***	Significant
H7	BP	<---	SI	0.41	0.139	2.928	0.003	Significant
H8	BP	<---	SDL	0.66	0.46	1.446	0.149	Not Significant
H9	BP	<---	SIP	0.53	0.074	7.149	***	Significant

4.9.4 Mediation Analysis

There are numerous kinds of mediation exits in research models, but in this research, the author mainly focused on Partial Mediation and Full Mediation. Partial Mediation predicts significant direct effects and indirect effects from the dependent variable to the independent variable. Thus, the unmediated relationship is important as well as the independent variable to the mediator and the mediator to the dependent variable relationships. Full mediation predicts that the direct effect of the independent variable on the dependent variable will not be significant in the presence of the mediator but that the indirect effect through the mediator will be significant. So, if either the independent variable to the mediator or the mediators to the dependent relationships are not significant, then no mediation can take place.

This research also examined the degree to which the Service Dominant Logic and service innovation performance showed the mediation effect on the relationship between independent variables and business performance. Baron and Kenny (1986) suggested that if there is a significant direct impact on the dependent variables from the independent variables, then their impact must be reduced by adding a mediator in the model. They also suggested the Sobel z-test to identify the impact of the indirect path on the dependent variable via the mediator from the independent variable. Other research studies proposed that a considerable indirect impact is the only requirement essential to show the mediation effect, and a test for bootstrapping is relatively more useful than the Sobel z-test in identifying suitable indirect effects (Preacher & Hayes, 2008; Zhao, Lynch Jr & Chen, 2010).

The distribution of the sampling of the indirect effect is twisted, and the confidence interval provided by the Sobel z-test usually incorporates zero and improperly shows an indirect effect which is not significant. In contrast, bootstrapping gives samples of the indirect effect and shows the cumulative distribution of the proper confidence intervals.

This research used the method of bootstrapping in AMOS to determine the impact of the indirect paths in the concluding model. The settings used in this research were for samples of 5,000 and confidence level of 95%. AMOS can measure the overall partial and full mediation effects, as it's illustrated in the Table below.

Table 4.28 Results of Mediation Analysis

Relationship			Direct Effect	In-Direct Effect	Results
CVCB	SDL	BP	.115 (.067)	.420 (***)	Full Mediation
SI	SDL	BP	.269 (.011)	.024 (.004)	Partial Mediation
CVCB	SIP	BP	.117 (***)	.405 (***)	Partial Mediation
SI	SIP	BP	.273 (.11)	.009 (0.031)	Full Mediation

Table 4.28 shows that the relationship between CVCB and BP is fully mediated by SDL because it has a non-significant direct effect and a significant indirect effect, whereas, the relationship between SI and BP is partially mediated because both direct and indirect effects are significant. The relationship between CVCB and BP is partially mediated by SIP because both the direct effect and indirect effects are significant, whereas, the relationship between SI and BP is entirely mediated because it has a non-significant direct effect and a significant indirect effect.

4.10 Conclusions

This chapter describes the outcomes of the data analysis which was conducted by SPSS and AMOS version 22. The results of the pilot study are presented and based on these results; some modifications were also incorporated. The preparation of data and the respondents' profiles were discussed. Screening of data and descriptive statistics were undertaken using SPSS version 22. Further analysis on the construct assessment was also conducted which showed the correlations among different factors in constructs. Principal component analysis (PCA) was also calculated along with the reliability and normality of each factor and was found to be satisfactory. Exploratory data analysis was conducted to verify the analysis of variance (ANOVA) among different industries and different posts of employees, and it was found that none of the values differed as all the values are non-significant ($p>0.05$). The hypotheses related to customer value co-creation behavior towards business performance were tested by Structural Equation Modeling (SEM) to examine the confirmatory data analysis. The process of SEM comprises the testing of both measurement and structural models and fitness-indexes were used to compare the level of acceptance concerning the final results. The SEM results also showed the testing of hypotheses in the structural model which explained the significant and non-significant relationships in the model. Mediation Analysis was also conducted to check the partial or full mediation through direct or indirect effects showing that CVCB is entirely mediated in the presence of SDL towards BP, and partially mediated in the presence of SIP. However, SI is partially mediated in the presence of SDL towards BP. However, it's fully mediated in the presence of SIP.

Chapter 5: Conclusions and Discussions

5.1 Introduction

Chapter 1 described the background and motivation of this research and identified the following research questions.

RQ1. What are the values associated with Customer Value Co-Creation Behavior in an organization?

RQ2. How does service innovation in regard to service dominant logic affect the performance of an organization?

RQ3. To what extent does service dominant logic enhance the performance of the organization?

To explain the answers to the research questions, chapter 2 presents a comprehensive literature review related to customer value co-creation behavior, service innovation, service dominant logic and business performance. Significant knowledge gaps regarding customer value co-creation behavior and service innovation with business performance were identified.

Based on the literature review in chapter 2, a conceptual model was generated as described in chapter 3, and nine hypotheses were proposed to close the research gaps

and answer the research questions, the hypotheses are given as follows:

H1: There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Service Dominant Logic (SDL)

H2: There is a positive correlation between Service Innovation (SI)and Service Dominant Logic (SDL)

H3: There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Service Innovation Performance (SIP)

H4: There is a positive correlation between Service Innovation (SI) and Service Innovation Performance (SIP)

H5: There is a positive correlation between Service Dominant Logic (SDL)and Service Innovation Performance (SIP)

H6: There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Business Performance (BP)

H7: There is a positive correlation between Service Innovation (SI) and Business Performance (BP)

H8: There is a positive correlation between Service Dominant Logic (SDL)and Business Performance (BP)

H9: There is a positive correlation between Service Innovation Performance (SIP) and Business Performance (BP)

Chapter 3 also explains the details of the research design and the methodology used. Chapter 4 explains the analysis of data by using both exploratory data analysis and confirmatory data analysis. This chapter describes the results, data analysis, conclusions and discussion of the hypotheses.

5.2 Answers to Research Questions

To answer the research questions developed for this research, nine hypotheses were proposed. Hypotheses 1, 3 and 6 answered the research question 1; hypotheses 2, 4 and 7 answered the research question 2 and hypotheses 5, 8 and 9 answered the research question 3.

The following section elaborates the conclusions of the respective hypotheses concerning the answers to the research questions.

5.2.1 Research Question # 1: What are the values associated with Customer Value Co-Creation Behavior in an organization?

Three hypotheses H1, H3, and H6 were proposed to answer the research question # 1.

H1: There is a positive correlation between Customer Value Co-Creation Behavior (CVCB and Service Dominant Logic (SDL)

H3: There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Service Innovation Performance (SIP)

H6: There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Business Performance (BP)

As explained in the previous chapter, these three hypotheses were examined by structural equation modeling to elaborate the whole relationship between the constructs.

H1: There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Service Dominant Logic (SDL)

The results showed that there was a significant relationship between customer value co-creation behavior and service dominant logic and they were positively co-related. The results of structural equation modeling showed that the regression estimate of customer value co-creation behavior and service dominant logic was 0.65, which showed a significant positive co-relation between CVCB and SDL.

The result does imply that higher interaction with customers, yields better innovation in services. It is because when a customer interacts with the company employees, this will have more chance to communicate their requirements and feedback about their experiences which will certainly help the company to improve their services based on the input from the customer. Previous research also supports this argument. For example, Gruner and Homburg (2000) mentioned that interaction with the customers during various stages of production of services definitely yields better output for their

required services (Li et al., 2016).

H3: There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Service Innovation Performance (SIP)

The results showed that there was a significant relationship between customer value co-creation behavior and service innovation performance and they were positively co-related. The results of structural equation modeling showed that the regression estimate of customer value co-creation behavior and service innovation performance was 0.21, which indicates a significant positive co-relation between CVCB and SIP. The result does imply that higher interaction with customers, yields the better performance of innovation in service. This is because organization gets a clear idea of the customer requirements based on their feedback and sharing experiences which lead them to develop services that are ideal for their customers and ultimately improves their performances for innovation. This is also supported by Huang and Xie (2017) that interaction frequency and interaction quality are the major factors which help the organization to get a deeper understanding of the customer needs and ultimately developing required services which increase their performances (U. S. Grissemann & Stokburger-Sauer, 2012).

H6: There is a positive correlation between Customer Value Co-Creation Behavior (CVCB) and Business Performance (BP)

The results showed that there was a significant relationship between customer value co-creation behavior and business performance and they were positively co-related. The results of the structural equation modeling showed that the regression estimate of

customer value co-creation behavior and business performance was 0.17, which indicates a significant positive co-relation between CVCB and BP.

The result does imply that the higher interactions with customers, the better business performance you will get. This is because when a customer interacts with frontline employees of an organization more easily, they can convey their experiences in a clearer way. It helps the organization to develop the services which are aligned with the requirements of customers; therefore, their customers will definitely get the required services from the organization. As a result, it ultimately improves the business performances. It is in line with the findings by Jaakkola and Alexander (2014) and Hsiao et al. (2015), they stated that involving customers at various stages of development of service provides some tremendous opportunities to get their desired services, which make them be a part of the organizational growth.

5.2.1 Conclusion for Research Question # 1

The conclusion for research question 1 is that customer value co-creation behavior is positively correlated with service dominant logic and performance in the organization. Increasing communication with customers, not only enhances the innovation of services but also leads to improving the organizational performance (Huang & Xie, 2017; Jaakkola & Alexander, 2014).

5.2.2 Research Question # 2: How does service innovation regarding service dominant logic affect the organization performance?

Three hypotheses H2, H4, and H7 were proposed to answer research question # 2.

H2: There is a positive correlation between Service Innovation (SI) and Service Dominant Logic (SDL)

H4: There is a positive correlation between Service Innovation (SI) and Service Innovation Performance (SIP)

H7: There is a positive correlation between Service Innovation (SI) and Business Performance (BP)

As explained in the previous chapter, these three hypotheses were examined by structural equation modeling to elaborate on the comprehensive relationship between the constructs.

H2: There is a positive correlation between Service Innovation (SI) and Service Dominant Logic (SDL)

The results showed that there was a significant relationship between service innovation and service dominant logic and they were positively co-related. The results of the structural equation modeling showed that the regression estimate between service innovation and service dominant logic was 0.52, indicating a significant positive correlation between SI and SDL.

The result does imply that the provision of services to the organization, customer and market results innovation in services. This is because providing opportunities to

customers to convey their requirements for their services increases the effectiveness and efficiency of their organization. The organization can prioritize their resources to focus on the area that can generate the highest return on investment by fulfilling the requirements of the targeted customers. It enhances the exchange of services by liquefying resources and expanding resource density (Lusch & Nambisan, 2015; Santos-Vijande et al., 2016).

H4: There is a positive correlation between Service Innovation (SI) and Service Innovation Performance (SIP)

The results showed that there was a significant relationship between service innovation and service innovation performance and they were positively co-related. The results of structural equation modeling showed that the regression estimate between service innovation and service innovation performance was 0.13, indicating a significant positive correlation between SI and SIP.

The result does imply that organizations who innovate services more frequently have more chances to get higher performances of service innovations. The business environment is changing very fast today. The organizations need to frequently review and enhance their services to provide new values to their customers; otherwise, the competitive advantage will be caught up by their competitors in a concise period especially under the current fast growing digital economy. The previous research supports that more efforts in exchanging ideas with customers to develop services as per the customers' requirements would certainly enhance the performances of the organizations (Mahr et al., 2014; Ordanini, Parasuraman & Rubera, 2014).

H7: There is a positive correlation between Service Innovation (SI) and Business Performance (BP)

The results showed that there was a significant relationship between service innovation and business performance and they were positively co-related. The results of structural equation modeling showed that the regression estimate between service innovation and business performance was 0.41, indicating significant positive co-relation between SI and BP.

The result does imply that the organization that has more innovation activities can perform better compare with the less innovation company. This is because the organization can optimize their business processes through service innovation to improve the efficiency and effectiveness of the organization. The improvement of productivity will reduce the operating cost and as a result to improve the business performance of the organization. Previous research also supports this finding that innovation and productivity relate to a mechanism of self-reinforcement, which enhances business performance (Cainelli et al., 2005; U. Grissemann et al., 2013).

5.2.3 Conclusion for Research Question # 2

The conclusion for research question 2 is that the service innovation is positively co-related with service dominant logic and performances in organizations. The establishment of ways in which the exchange of services between customer and organization to innovate services can increase the performances of organizations (Lusch & Nambisan, 2015; Ordanini & Parasuraman, 2011; Santos-Vijande et al.,

2016).

5.2.4 Research Question # 3: To what extent does service dominant logic enhance the organizational performance?

Three hypotheses H5, H8, and H9 were proposed to answer the research question # 3.

H5: There is a positive correlation between Service Dominant Logic (SDL) and Service Innovation Performance (SIP)

H8: There is a positive correlation between Service Dominant Logic (SDL) and Business Performance (BP)

H9: There is a positive correlation between Service Innovation Performance (SIP) and Business Performance (BP)

As explained in the previous chapter, these three hypotheses were examined by structural equation modeling to elaborate on a comprehensive relationship between the constructs.

H5: There is a positive correlation between Service Dominant Logic (SDL) and Service Innovation Performance (SIP)

The results showed that there was a significant relationship between service dominant

logic and service innovation performance and they were positively co-related. The results of structural equation modeling showed that the regression estimate between service dominant logic and service innovation performance was 0.82, which showed a significant positive co-relation between SDL and SIP.

The result does imply that the process to engage the customer in service innovation will affect the performance of service innovation. The process of customer engagement involves mutual learning, collaboration, and interaction between customers. The results from these engagement activities can provide a more crystallized thinking or ideas for service innovation and ultimately the performance of service innovation. This finding is in line with the previous research that the better performance of service innovation can be achieved by an exchange of ideas for service development, this opens up ways to develop numerous opportunities to enhance service innovation and ultimately their performances (Lusch & Nambisan, 2015; Santos-Vijande et al., 2016).

H8: There is a positive correlation between Service Dominant Logic (SDL) and Business Performance (BP)

The results showed that there was a non-significant relation between service dominant logic and business performance and they were positively co-related. The results of structural equation modeling showed that the regression estimate between service dominant logic and business performance was 0.66, indicating a non-significant positive co-relation between SDL and BP.

The result does imply that the better business performance can be achieved by an

exchange of services ideas between customers and organization. This provides opportunities to capture the customers' requirements, and the organization can focus their resources to develop services demanded by the customers, ultimately achieving greater business performances (Le Meunier-FitzHugh et al., 2016; Lichtenthaler, 2016; Wilden & Gudergan, 2015).

H9: There is a positive correlation between Service Innovation Performance (SIP) and Business Performance (BP)

The results showed that there was a significant relationship between service innovation performance and business performance and they were positively co-related. The results of structural equation modeling showed that the regression estimate between service innovation performance and business performance was 0.53, indicating a significant positive co-relation between SIP and BP.

The result does imply that higher service innovation performances yield better performance of the business. It is because innovation activities towards the right goal of organization can provide numerous opportunities for greater business performances (Camisón & Villar-López, 2014; Hogan & Coote, 2014).

5.2.5 Conclusion for Research Question # 3

The conclusion for research question 3 is that the service dominant logic is positively co-related with service innovation and business performance in an organization (Lusch & Nambisan, 2015; Lusch, Vargo & Tanniru, 2010).

5.3 Discussion Summary

Lusch and Vargo (2006) mentioned in the Service Dominant Logic (SDL) that interaction is the major component which creates opportunities to exchange and integrate numerous operant resources to develop new services. Lusch and Vargo (2006) also argued that customers feedback can impact to the organization's service development processes through operant resources. The results of this research also supported that the exchange of ideas with the customers along with the sharing of their feedback and experiences about the services can help organizations to develop their new services by understanding the behaviors of their customers. However, the empirical findings also showed that numerous factors of value co-creation behavior which affects the exchange of idea and process of value exchange between customers and organization including information seeking, information from other customers as well (Devereux & Gallarza, 2016; Li et al., 2016).

Lusch et al. (2007) also mentioned that customers could also be considered to be the value co-creators themselves and they can be doing so through their skills and knowledge on the resources which were provided by the organization to have a fruitful experience and execute their requirements. It is also considered that employees of the organization are part of the resources (Brodie, 2017; Ranjan & Read, 2016). The findings of this research also suggest that customers also use their previous experience

and knowledge to develop their required services which will help the organization to generate required services and ultimately increases their innovation performances.

The behavior of customers during co-creation of value is also important as it'll lead to decide the extent of communication level between employees and customers (Michel, Kavanagh & Tracey, 2013). It also describes the path to follow to develop their services along with other relevant factors for their services (Edvardsson et al., 2011). The empirical results also show that through the right behavior, customers eloquent their requirements to generate their services by giving details of related services which were given to them in other organizations. Such behavior also relies on the closeness level of the employees and the customers. Hence, it is important for the organization to understand that customers know their requirements very well and they can only develop services with the help of their feedback and sharing of knowledge to ultimately increase their innovation and business performance.

Grönroos and Voima (2013) suggested that it is also vital that organization employees should also understand the value co-creation of customers to provide better services and not only behave as value facilitator but also play the role of value co-creator. As the empirical result shows the behavior and interaction between employees and the organization, it gives the organization the opportunity to enhance their learning and knowledge from each other while customers can get their desired services. This may the best way for the organization employees to learn value co-creation process of customers as they may get better insights of their requirements and consequently, improve their services as per their feedback and suggestions and provide pleasant experiences to customers (Lindgren & Jansson, 2013; Saarijärvi et al., 2013).

Chapter 6: Implications and Contributions

6.1 Introduction

Chapter 5 presented the conclusions and discussion of the research findings based on the conceptual framework of the research model. This chapter explains the managerial implications and theoretical contributions to the research field.

This chapter is further divided into three sections as shown in Figure 6.1:

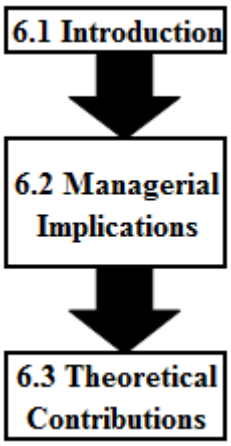


Figure 6.1 Structure of Implications and Contributions

Source: Developed for this research

6.2 Managerial Implications

Pine and Gilmore (1998) explained that the economy is moving towards an experience

and service approach. The range of service products has developed more and more significantly in both technological and production companies, and customers are more demanding on receiving their required services in short period. This can only be fulfilled by learning from customers' behavior regarding co-creation of value.

Therefore, the results of this research provide the necessary analysis for managers to communicate and understand the behavior of customers towards co-creation and how it can lead to better performance in innovation and business. The empirically endorsed five-construct conceptual framework provides beneficial outcomes for communicating and defining value co-creation for enhancing innovation in an organization. Without these analyses, managers will face a difficult situation in understanding or managing service strategies that focus on creating service innovation through customer behavior.

Service dominant logic also provides a reliable and valid measurement which permits an organization to learn and measure from previous experience. Furthermore, service dominant logic is also made easy by examining co-creation behavior and innovative services with a significant measurement facility, and managers can adjust data collection. Platforms can be made by managers to increase learning from networks and relationships to enhance competitive advantages in generating innovative services.

In practice, two third-order constructs, one second-order construct, and two first-order constructs serve various purposes in this research. The third-order constructs can be

used to examine the value co-creation behavior of customers, also utilizing service dominant logic. The second order factor can be used for innovating services in an organization. The two first-order constructs can be utilized to identify the performance of innovation and business. These constructs can also be utilized as a check-list for significant results. They are also valuable for managers to categorize the strengths and weaknesses of the organization in communicating with customers or employees, along with the values for co-creation and learning about value-in-use.

The outcomes of this research can also be utilized to manage and assess the behavior of customers in an organization regarding innovating services. In the resource-based view and the traditional theory of innovation, innovation in products and services was widely based on the capabilities, knowledge, and experience of employees and customers that develop externally or acquired internally. Even though several organizations integrate service during their strategy making due to a high level of competition, it consumes a sufficient amount of money and time due to which many managers reduced their innovating services. Conversely, they have no idea that innovating design or service processes may lead to the developing of novel ideas. Managers from various service industries can learn from the analysis so as to improve their innovation and business performance.

The contribution of innovative performance towards an organization's business performance was not noticeable in the past. However, the outcomes of this research show that managers now have a relatively better understanding and reference of how the service organization can contribute to innovating services. Therefore, resources can be perfectly allocated to strategies related to services. This research also identified

that active learning from the behavior of customers towards value co-creation measures has significant effects on the innovative performance of the organization, including more innovations in processes and design. Concerning the similarity between the product innovation and service innovation (Tether, 2005), organizations that manufacture products can also design the services with which the product can be delivered rather than just the embedded value (features). These organizations can also seek opportunities to co-create products with the experience and feedback from customers in the design of products.

The empirical results show that value co-creation behavior of customers positively influences the innovation performance of the business and it services. Managers should emphasize on how their organization can collaborate with customers and employees to enhance the performance. Rather the single-dimensional information pulling and selling, managers should seek possibilities in developing collaboration with customers to improve their invaluable feedback and experience sharing, also engaging network partners for value co-creation, utilizing the learning value to drive performance and give reliable services, and develop further collaboration.

6.3 Theoretical Contributions

This research study made several theoretical contributions. First, a new model was developed which shows the relationship of value co-creation behavior of customers with service dominant logic. As Vargo and Lusch (2004) introduced the concept of service dominant logic, various researchers have been discussing diverse characteristics of this concept. Conversely, not much research has been done that

shows the relationship of service innovation with service dominant logic. Substantial gaps exist in the literature which is the clear sign for the necessity of more research in the area of service innovation and experience of value co-creation behavior of customers. Without generally proofs and research, it is not easy for scholars to develop and examine models and theories, relate the results of experimental studies or advance theories that other researchers can utilize in further research. Therefore, this research serves as an initiating point for such studies. With the development of the relations in this research, the measurement of an organization's innovation performance and business performance can now be monitored in further research.

Furthermore, by using two third-order constructs, one second-order construct, and two first-order constructs, this research study allows other researchers to construct their own research models more accurately. Other scholars may utilize such relations to modify the linkages among the constructs and select various orders of factors to develop innovative models and theories.

Second, a framework related to the value co-creation behavior of customers regarding business performance was developed. Lusch et al. (2010) suggested for future research that an organization's innovation is particularly related to how much collaboration and sharing of knowledge or experience is done with the customers. This research developed a comprehensive model which integrates the behavior of customers during their interactions with employees to get their desired services, innovation in services related to processes and products, the outcomes of the performance of service innovation and their positive influences on business performance. The framework based on the survey responses from various service industries in Hong Kong provides

feedback to the future research suggested by Lusch et al. (2010). The results also confirmed the social capital theory which states that a higher chance of collaboration with the customers or employees will lead to more innovation. Organizations which are vigorously communicating with their customers and employees have more opportunity to innovate their services. This research used advanced knowledge on innovation in services and the behavior of customers that can be the vital antecedent for the performance of service innovation and business performance regarding empirical analysis.

Previous research was linked with the traditional approaches of Goods Dominant logic, and the results were embedded in the offering of value to their customers for their products. There was no existing research which uses service dominant logic to emphasize service innovation performance. The empirical analysis shows that the value co-creation behavior of customers and service innovation positively influences business performance. This research has filled the existing gap in the literature on value co-creation behavior and service dominant logic and their relationship which ultimately affects innovation performance and business performance.

In a wider perspective, service is not commonly confined to customer service. Vargo and Lusch (2004) explained that “service” is the utilization of specific capabilities to other people or oneself through a defined process or product as a server appliance. This research can act as an initial point from where other researchers can develop theories of innovation or performance based on service dominant logic.

Third, this research advances knowledge of the service dominant logic context in which value co-creation behavior and innovation in services contribute to business

performance. The theoretical framework developed for this research confirms that organizations that can integrate the behavior of customers in innovating services can have higher business performances so that the empirical results will add new support to value co-creation and the business performance literature. This research also contributed by explaining how activities related to service dominance, sharing the experience of customers' requirements and co-creation behavior are also vital in contributing to an organization's performance and business so that the performance of service innovation will have a significant mediation role.

The finding is the basis to demonstrate the mechanism of how an organization uses the customer behavior to innovate services and enhance performances. Additionally, this finding aid relationship theories in which co-creation play a significant role in the innovation of organizations services.

This empirical research supports the argument of Lavie (2006) that the nature of a resource is less important than nature of a relationship. That is, even if an organization has a vast knowledge of their processes or products, and strong research and development in their organization; they cannot improve innovation better without utilizing their customers' feedback or participation in developing new services or improving existing ones. After such analysis, an organization is required to make the choice of fully involving their customers for innovating or improving services.

Chapter 7: Limitations and Future Research

7.1 Introduction

The previous chapter explained the managerial implications and theoretical contribution from the research findings based on the conceptual framework for the research model. This chapter will explain the limitations encountered in this research and provides some suggestions for the possibility of future research.

This chapter is further divided into three sections as shown in Figure 7.1:

Figure 7.1 Structure of Limitations and Future Research

Source: Developed for this research

7.2 Limitation of Research

This research gathered the responses from front-line line staff, R&D staff, and top

management.

One of the major limitations of this research is the relatively moderate sample size from various service industries of Hong Kong. The responses from organizations which are quite new in the innovation aspects were discarded because they did not have much information which could be regarded as meaningful for innovative performance. Additionally, due to the company size, data related to the performance of innovation and novel services are dispersed which might be the reason that the relation between service dominant logic and business performance is not significant. The researcher also came across problems in getting responses from top management as they are usually quite busy to participate in such survey questionnaires. Some of them were from multi-national organizations, and they were also quite reluctant to respond to particular questions.

As the major part of data are gathered from the main sectors of service industries, hotel and tourism, trading, logistics and transportation and banking and finance, so the results are biased towards a few sectors rather giving a holistic view of innovation and business performance. Furthermore, service industries in Hong Kong are considered as clustered with a huge network of customers or suppliers. Sharing of knowledge regarding experience or innovation, interaction during the process of development and external parties' involvement in service innovation are more active.

Hence, for co-creation of value in Hong Kong service industries is higher by nature. This could be a possible limitation of the generalizability of this research because of such environment setting.

As this research is a one-shot or cross-sectional study, the study of correlations may be restricted to a period – several years of performance in this research. If this research was conducted longitudinally, then the researcher can explore the value co-creation behavior and its effects on business performance over a period. It could be analyzed from the longitudinal study so that either the behavior of the customer value co-creation will enhance the innovation and the business performance.

7.3 Future Research

With a reliable and valid measurement of the behavior of customer value co-creation behavior through service dominant logic, this research can be widening for more research on value co-creation behavior and service dominant logic and their effects on several features of management. Specifically, for technology related organizations which are altering their behavior from Goods-Dominant Logic to Service-Dominant Logic, this research can lead to new research on Service-Dominant Logic, and based service innovation.

One small limitation of this research is the size of the sample which particularly covers service industries in Hong Kong. Further research is encouraged to expand the size of the sample and cover other countries and broaden the industries to further examine the theoretical framework developed in this research.

Furthermore, different countries may foster diverse ways to collaborate with customer or employees, have diverse insights of expectations of services and diverse insights for value co-creation for services/products. It is also encouraged to particularly emphasize on an industry and see how customers behave in co-creating value for

innovation in services.

This research found that value co-creation behavior significantly influences innovation performance. New service development speed and competitive advantages may also be improved due to the moderating factors of service dominant logic. Providing that different organizations have different outcomes of business performance, at this point, the question to be raised is whether service-oriented organizations out-perform others (like organizations which are resource based). As an example, would value co-creation behavior have a moderating effect in a resource-oriented organization? As empirical investigation in this area would be interesting to pursue.

As described in the section on limitations, business model innovation was not included in this research study. Adding this concept to examine the relationships in business performance would be interesting. Potential further research may be required on developing the measurement scale for innovation in the business model. Additionally, future research can also include the sub-dimensions of innovations, for example, intangibilities significantly have an influence on innovation in service (Drejer, 2004), and value-in-use specifically for product interaction also significantly influences innovation (Mascitelli, 2000). It would also be worth doing research to identify whether value-in-use is better than customer satisfaction.

In the concept of the management of innovation, various methodologies utilized by organizations may affect their results. Earlier research discussed coordination of inter-functional aspects as a significant antecedent of value co-creation with customers. Furthermore, internal units and external partners management are vital to implementing

the co-creation strategy. Future research covering the management of innovation regarding the methodology of an organization and the outcome performance on service innovation is highly encouraged.

Service organizations may or may not be aware that a network of partners also exists for them to examine value co-creation. This is also an extensive opportunity for an organization to get insights, sharing, and knowledge from their partners and to develop innovative services. It would be encouraging to identify how knowledge from partners can affect the business performance. External networking management and knowledge management of an organization can be treated as potential moderators. External network collaborations through different projects with other service organizations and research institutions are vital for organizations that are keen to develop or improve services through sharing of knowledge (Löfsten & Lindelöf, 2002; Storey & Tether, 1998). All these projects generate a vast amount of both explicit and tacit knowledge. Effective management of knowledge may advance the effectiveness of value co-creation behavior of customers on innovation performance. Likewise, effective resource information on external networks may also advance the effectiveness of service innovation regarding innovation performance. Therefore, management of knowledge and management of external networks are possible mediators of the relationship between value co-creation behavior, innovation in services and performance of innovation. Further research on such relationship is recommended.

APPENDIX A: Questionnaire for Research Study

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

Exploring customer co-creation behavior in service innovation with Service Dominant Logic to measure organization performance: An empirical study on Hong Kong service industries

You are invited to participate on a study conducted by KHAN Muhammad Aamir, who is a post-graduate student of the Department of Industrial & Systems Engineering in The Hong Kong Polytechnic University. The project has been approved by the Human Subjects Ethics Sub-committee (HSESC) of The Hong Kong Polytechnic University.
The aim of this study is find the co-creation behavior of customers to generate innovative services and how it'll affect business performance of an organization. The study will involve completing a questionnaire, which will take you about 15-20 min.
All information related to your organization will remain confidential, and will be identifiable by codes only known to the researcher.
You have every right to withdrawn from the study before or during filling of the survey questionnaire without penalty of any kind.
If you would like to get more information about this study, please contact KHAN Muhammad Aamir on tel. no.5429 8043; email address: 1290 r@
If you have any complaints about the conduct of this research study, please do not hesitate to contact Miss Cherrie Mok, Secretary of the Human Subjects Ethics Sub-Committee of The Hong Kong Polytechnic University in writing (c/o Research Office of the University) stating clearly the responsible person and department of this study.
Thank you for your interest in participating in this study.

Prof. Eric Tsui
Principal Investigator

Load unfinished survey | Next ▸ | Exit and clear survey

Exploring customer co-creation behavior in service innovation with Service Dominant Logic to measure organization performance: An empirical study on Hong Kong service industries

0% 100%

Part 1: customers' value co-creation behavior

The following are some statements that assess **customers' behavior** towards organizations for getting services. Please read each statement and **respond to ALL** by stating the extent to which you agree/disagree.

*

Information seeking

Indicate your extent of agreement about how well the statements below describe about the participation behavior from customers:

	1	2	3	4	5
Our customers seek information from other customers/employees about relevant/required services	○	○	○	○	○
Our customers search for information about the location of relevant/required services	○	○	○	○	○
Our customers pay attention to how other firms provide the same type of services	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Information Sharing

Indicate your extent of agreement about how well the statements below describe about the participation behavior from customers:

	1	2	3	4	5
Our customers clearly explain to our employees for what they require	○	○	○	○	○
Our customers give proper information of required service to our employees	○	○	○	○	○
Our customers provide necessary information so that our employees can carry out their work properly	○	○	○	○	○
Our customers answer all the queries related to required services	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Responsible behavior

Indicate your extent of agreement about how well the statements below describe about the participation behavior from customers:

	1	2	3	4	5
Our customers perform all the tasks that they are required for their services	○	○	○	○	○
Our customers adequately complete all the expected behavior that they are required for their services	○	○	○	○	○
Our customers fulfil responsibilities to our business that they are required for their services	○	○	○	○	○
Our customers follow our employee's directives that they are required for their services	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Personal interaction

Indicate your extent of agreement about how well the statements below describe about the participation behavior from customers:

	1	2	3	4	5
Our customers are friendly to our employees	○	○	○	○	○
Our customers are kind to our employees	○	○	○	○	○
Our customers are polite to our employees	○	○	○	○	○
Our customers are courteous to our employees	○	○	○	○	○
Our customers do not act in a rude way to our employees	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Feedback

Indicate your extent of agreement about how well the statements below describe about the citizenship behavior from customers:

	1	2	3	4	5
When our customers have any useful idea on how to innovate services, they let our employees know about it	○	○	○	○	○
When our customers receives better service from our employees, they let our employees to know about it	○	○	○	○	○
When our customers come across any problem of our service, they let our employees know about it	○	○	○	○	○

?

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Advocacy

Indicate your extent of agreement about how well the statements below describe about the citizenship behavior from customers:

	1	2	3	4	5
Our customers inform to our employees when they said positive things about our service	○	○	○	○	○
Our customers share with our employees when they recommended our services to others	○	○	○	○	○

?

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Helping

Indicate your extent of agreement about how well the statements below describe about the citizenship behavior from customers:

	1	2	3	4	5
Our customers assist other customers when they need help	○	○	○	○	○
Our customers help other customers when they seem to have problems	○	○	○	○	○
Our customers teach other customers to use the service correctly	○	○	○	○	○
Our customers give advices to other customers related to our services	○	○	○	○	○

?

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Tolerance

Indicate your extent of agreement about how well the statements below describe about the citizenship behavior from customers:

	1	2	3	4	5
If a service is not delivered as expected, our customers would be willing to put up with it	○	○	○	○	○
If our employees make a mistake during service delivery, our customers would be willing to be patient	○	○	○	○	○
If our service takes longer time than usual, our customers would be willing to adapt	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

Resume later | Previous | Next | Exit and clear survey

Part 2: Innovation in services

The following are some statements that assess **innovation in services** for your organization. Please read each statement and **response to ALL** by stating the extent to which you agree/disagree

*

Process Innovation:

From the past three years, our organization regularly offers new practices in:

	1	2	3	4	5
Customer information inquiry and consultation	○	○	○	○	○
Customer services	○	○	○	○	○
Selling services/products	○	○	○	○	○
Providing after-sales services	○	○	○	○	○
Developing new products/services	○	○	○	○	○
Promoting new products/services	○	○	○	○	○
Internal administration and operations	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Product Innovation:

From the past three years, our organization regularly:

	1	2	3	4	5
Revised and improved existing products/services	○	○	○	○	○
Repackaged existing products/services	○	○	○	○	○
Extended product/services	○	○	○	○	○
Created and established new lines of products/service	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

Resume later | Previous | Next | Exit and clear survey

Part 3: Collaborative Activities for Services

The following statements relate to **collaborative activities for services.** Please read each statement and **response to ALL** by stating the extent to which you agree/disagree.

*

Customer Collaboration

Indicate your extent of agreement about how well below statements describe what happens in your organization during innovation process:

	1	2	3	4	5
We interact with customers beyond the standards of market research	○	○	○	○	○
The interaction with the customers related to their services is very frequently	○	○	○	○	○
We frequently organize meetings with customers to discuss about their required services	○	○	○	○	○
We interact with numerous customers to provide services	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Business-Partner Collaboration

Indicate your extent of agreement about how well below statements describe what happens in your organization during innovation process:

	1	2	3	4	5
We interact with business partners beyond the standards of market research	○	○	○	○	○
The perceived intensity of business partners interaction is high	○	○	○	○	○
The frequency of meetings with business partners is high	○	○	○	○	○
The number of business partners with whom we interact is high	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Customer Orientation

Indicate your extent of agreement about how well below statements describe the traits of your organization:

	1	2	3	4	5
Our organization has routine or regular measures of customer service	○	○	○	○	○
Our service development is based on good customer information	○	○	○	○	○
Our organization knows our customers well	○	○	○	○	○
Our organization has a good sense of how our customers value our services	○	○	○	○	○
Our organization is more customer-focused than our competitors	○	○	○	○	○
Our organization competes primarily on the basis of service differentiation	○	○	○	○	○
Our organization believes the customer's interest should always come first ahead of the company's interest	○	○	○	○	○
Our organization's services are oriented for the best customers in the business	○	○	○	○	○
Our organization believes that our business exists primarily to serve customers	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Innovative Orientation

Indicate your extent of agreement about how well below statements describe the culture for innovation in your organization:

	1	2	3	4	5
Technical innovation, based on research results, is readily accepted by our customers	○	○	○	○	○
Management actively seeks innovative ideas	○	○	○	○	○
Innovation is readily accepted in our program,/project managementInnovation is readily accepted in our program,/project management	○	○	○	○	○
People are penalized for new ideas that do not work	○	○	○	○	○
Innovation is perceived as too risky and is resisted	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Employee Collaboration

To what extent are contact personnel engaged in the processes of service innovation?

	1	2	3	4	5
Contact personnel are actively engaged in generating and screening ideas for new services	○	○	○	○	○
Contact personnel actively engage in establishing goals and priorities for organization's strategies	○	○	○	○	○
Contact personnel are adequately represented on project teams and other strategic activities	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Knowledge Integration Mechanism

To what extent does your organization uses each of the following activities to capture, interpret and integrate knowledge and information about market and technology conditions?

	1	2	3	4	5
Regular formal reports and memos that summarize learning	○	○	○	○	○
Information sharing meetings	○	○	○	○	○
Face-to-face discussions by cross-functional teams	○	○	○	○	○
Formal analysis of failed service development projects	○	○	○	○	○
Formal analysis of successful service development projects	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

Part 4: Organizational Performance

The following are some statements that assess **performances** of your organization. Please read each statement and **response to ALL** by stating the extent to which you agree/disagree

*

Service Innovation Performance

In comparison with our competitors,

	1	2	3	4	5
The percentage of service innovation that met customer requirements is higher	○	○	○	○	○
Success rate of service innovation program efforts of our organization is higher	○	○	○	○	○
Service Innovation program of our organization is more successful in meeting corporate profit objectives	○	○	○	○	○
Overall performance of the service innovation is higher	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

*

Business Performance

In comparison with our competitors,

	1	2	3	4	5
The sales growth position has been outstanding	○	○	○	○	○
The market share gains have been outstanding	○	○	○	○	○
The return of corporate investment has been outstanding	○	○	○	○	○
The net profit position has been outstanding	○	○	○	○	○
The ROI position has been outstanding	○	○	○	○	○
The return on sales has been outstanding	○	○	○	○	○
The financial liquidity position has been outstanding	○	○	○	○	○

D = Disagree [1]	SLD = Slightly Disagree [2]	U = Undecided [3]	SLA = Slightly Agree [4]	A = Agree [5]

Part 5: Demographic Information

Please complete the following demographic information. **Please note that this survey is completely anonymous and your answers will be kept strictly confidential and will be used only by the researcher for statistical purposes.**

* **Gender:**

- Female
- Male

* **Age:**
Choose one of the following answers

- less than 20
- 20 to less than 30
- 30 to less than 40
- 40 to less than 50
- 50 to less than 60
- 60 or more

*
Education:
please indicate the highest level of education you have completed:

Choose one of the following answers

- High School or equivalent
- Postgraduate Diploma or Certificate Graduates
- Associate Degree or Higher Diploma Graduates
- Bachelor Degree
- Master Degree
- Doctoral Degree
- None of the above

* **Working experience:**
Choose one of the following answers

- Less than 2 years
- 2 to less than 5 years
- 5 to less than 10 years
- 10 to less than 15 years
- 15 to less than 20 years
- 20 to less than 25 years
- 25 to less than 30 years
- 30 or more years

• **Working Experience - for current employer**
Choose one of the following answers

- Less than 2 years
- 2 to less than 5 years
- 5 to less than 10 years
- 10 to less than 15 years
- 15 to less than 20 years
- 20 to less than 25 years
- 25 to less than 30 years
- 30 or more years

• **Organization Type:**
Choose one of the following answers

- Public sector (e.g. Government)
- Private sector (e.g. most business and individuals)
- Non-profit sector
- Other

• **Position in the Organization**
Choose one of the following answers

- Top Management
- Middle Management
- Junior Management
- Administrative Staff
- Consultant
- Temporary Staff
- Research & Development
- Self-Employed/Partner
- Front-line

• **Industry Sector:**
Choose one of the following answers

Please choose...

• **Size of the Organization:**
Choose one of the following answers

- Less than 10 employees
- 10 – 99 employees
- 100 - 249 employees
- 250 – 399 employees
- 400 + employees

Would you like to receive the results and participate in the follow-up study?

Yes No

Resume later | Previous | Submit | Exit and clear survey

APPENDIX B: SPSS Results

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ISK1	401	1	5	3.42	.938
ISK2	401	1	5	3.39	.924
ISK3	401	1	5	3.46	.812
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ISR1	401	1	5	3.36	.878
ISR2	401	1	5	3.38	.872
ISR3	401	1	5	3.52	.840
ISR4	401	1	5	3.48	.846
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
RB1	401	1	5	3.47	.874
RB2	401	1	5	3.40	.858
RB3	401	1	5	3.54	.805
RB4	401	1	5	3.47	.851
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PI1	401	1	5	3.73	.798
PI2	401	1	5	3.75	.780
PI3	401	1	5	3.80	.754
PI4	401	1	5	3.84	.749
PI5	401	1	5	3.75	.934
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
FB1	401	1	5	3.70	.855
FB2	401	1	5	3.73	.811
FB3	401	1	5	3.80	.816
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
AD1	401	1	5	3.75	.762
AD2	401	1	5	3.68	.835
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
HP1	401	1	5	3.76	.816
HP2	401	1	5	3.81	.779
HP3	401	1	5	3.74	.790
HP4	401	1	5	3.61	.853
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
TL1	401	1	5	3.30	.905
TL2	401	1	5	3.19	.923
TL3	401	1	5	3.39	.919
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pr1	401	1	5	3.75	.703
Pr2	401	1	5	3.81	.713
Pr3	401	1	5	3.82	.724
Pr4	401	1	5	3.58	.770
Pr5	401	1	5	3.56	.782
Pr6	401	1	5	3.40	.867
Pr7	401	1	5	3.31	.959
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pd1	401	1	5	2.80	1.026
Pd2	401	1	5	2.70	1.042
Pd3	401	1	5	3.11	.981
Pd4	401	1	5	3.17	.910
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CC1	401	1	5	3.26	.928
CC2	401	1	5	3.41	.893
CC3	401	1	5	3.40	.914
CC4	401	1	5	3.53	.809
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BPC1	401	1	5	3.52	.825
BPC2	401	1	5	2.93	.932
BPC3	401	1	5	3.27	.812
BPC4	401	1	5	3.31	.834

Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CO1	401	1	5	3.43	.962
CO2	401	1	5	3.33	.981
CO3	401	1	5	3.65	.907
CO4	401	1	5	3.58	.932
CO5	401	1	5	3.72	.868
CO6	401	1	5	3.49	.900
CO7	401	1	5	3.55	.907
CO8	401	1	5	3.59	.847
CO9	401	1	5	3.57	.846
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
IO1	401	1	5	3.56	.847
IO2	401	1	5	3.39	.888
IO3	401	1	5	3.91	.825
IO4	401	1	5	3.74	.819
IO5	401	1	5	3.75	.865
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
EC1	401	1	5	3.83	.820
EC2	401	1	5	3.81	.838
EC3	401	1	5	3.78	.781
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
KIM1	401	1	5	3.48	.810
KIM2	401	1	5	3.43	.779
KIM3	401	1	5	3.34	.803
KIM4	401	1	5	3.30	.862
KIM5	401	1	5	3.29	.856
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SIP1	401	1	5	4.04	.770
SIP2	401	1	5	4.27	.791
SIP3	401	1	5	4.38	.746
SIP4	401	1	5	4.22	.797
Valid N (listwise)	401				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BP1	401	1	5	4.04	.785
BP2	401	1	5	3.99	.757
BP3	401	1	5	4.02	.691
BP4	401	1	5	4.00	.757
BP5	401	1	5	3.97	.739
BP6	401	1	5	3.44	.921
BP7	401	1	5	3.88	.764
Valid N (listwise)	401				

Correlations

		ISk1	ISk2	ISk3	ISk
ISk1	Pearson Correlation	1	.620**	.486**	.849**
	Sig. (2-tailed)		.000	.000	.000
	N	401	401	401	401

ISk2	Pearson Correlation	.620**	1	.552**	.871**
	Sig. (2-tailed)	.000		.000	.000
	N	401	401	401	401
ISk3	Pearson Correlation	.486**	.552**	1	.792**
	Sig. (2-tailed)	.000	.000		.000
	N	401	401	401	401
ISk	Pearson Correlation	.849**	.871**	.792**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.691
Bartlett's Test of Sphericity	Approx. Chi-Square	357.420
	df	3
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.107	70.236	70.236	2.107	70.236	70.236
2	.523	17.448	87.683			
3	.369	12.317	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
ISk1	.840
ISk2	.870
ISk3	.803

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.787	3

Correlations

		ISh1	ISh2	ISh3	ISh4	ISh
ISh1	Pearson Correlation	1	.643**	.568**	.436**	.803**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	401	401	401	401	401
ISh2	Pearson Correlation	.643**	1	.661**	.523**	.856**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	401	401	401	401	401
ISh3	Pearson Correlation	.568**	.661**	1	.651**	.867**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	401	401	401	401	401
ISh4	Pearson Correlation	.436**	.523**	.651**	1	.785**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	401	401	401	401	401
ISh	Pearson Correlation	.803**	.856**	.867**	.785**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.782
Bartlett's Test of Sphericity	Approx. Chi-Square	696.732
	df	6
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.746	68.657	68.657	2.746	68.657	68.657
2	.604	15.112	83.769			
3	.354	8.838	92.607			
4	.296	7.393	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
ISh1	.796
ISh2	.858
ISh3	.875
ISh4	.782

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.847	4

Correlations

		RB1	RB2	RB3	RB4	RB
RB1	Pearson Correlation	1	.681**	.591**	.517**	.841**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	401	401	401	401	401
RB2	Pearson Correlation	.681**	1	.630**	.526**	.853**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	401	401	401	401	401
RB3	Pearson Correlation	.591**	.630**	1	.610**	.843**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	401	401	401	401	401

RB4	Pearson Correlation	.517**	.526**	.610**	1	.795**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	401	401	401	401	401
RB	Pearson Correlation	.841**	.853**	.843**	.795**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.800
Bartlett's Test of Sphericity	Approx. Chi-Square	699.188
	df	6
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.780	69.488	69.488	2.780	69.488	69.488
2	.539	13.486	82.974			
3	.371	9.270	92.244			
4	.310	7.756	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
RB1	.839
RB2	.855
RB3	.851
RB4	.788

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.853	4

Correlations

		PI1	PI2	PI3	PI4	PI5	PI
PI1	Pearson Correlation	1	.683**	.648**	.471**	.407**	.791**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	401	401	401	401	401	401
PI2	Pearson Correlation	.683**	1	.735**	.516**	.421**	.824**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	401	401	401	401	401	401
PI3	Pearson Correlation	.648**	.735**	1	.718**	.523**	.890**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	401	401	401	401	401	401
PI4	Pearson Correlation	.471**	.516**	.718**	1	.528**	.794**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	401	401	401	401	401	401
PI5	Pearson Correlation	.407**	.421**	.523**	.528**	1	.737**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	401	401	401	401	401	401
PI	Pearson Correlation	.791**	.824**	.890**	.794**	.737**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	401	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.816
Bartlett's Test of Sphericity	Approx. Chi-Square	1042.769
	df	10
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.281	65.627	65.627	3.281	65.627	65.627
2	.709	14.186	79.813			
3	.490	9.800	89.613			
4	.321	6.427	96.040			
5	.198	3.960	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
PI1	.798
PI2	.840
PI3	.907
PI4	.800
PI5	.690

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.860	5

Correlations

		FB1	FB2	FB3	FB
FB1	Pearson Correlation	1	.518**	.416**	.805**
	Sig. (2-tailed)		.000	.000	.000
	N	401	401	401	401
FB2	Pearson Correlation	.518**	1	.505**	.831**
	Sig. (2-tailed)	.000		.000	.000

	N	401	401	401	401
FB3	Pearson Correlation	.416**	.505**	1	.788**
	Sig. (2-tailed)	.000	.000		.000
	N	401	401	401	401
FB	Pearson Correlation	.805**	.831**	.788**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.675
Bartlett's Test of Sphericity	Approx. Chi-Square	259.559
	df	3
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.961	65.366	65.366	1.961	65.366	65.366
2	.584	19.470	84.836			
3	.455	15.164	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
FB1	.795
FB2	.842
FB3	.787

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.734	3

Correlations

		AD1	AD2	AD
AD1	Pearson Correlation	1	.548**	.868**
	Sig. (2-tailed)		.000	.000
	N	401	401	401
AD2	Pearson Correlation	.548**	1	.891**
	Sig. (2-tailed)	.000		.000
	N	401	401	401
AD	Pearson Correlation	.868**	.891**	1
	Sig. (2-tailed)	.000	.000	
	N	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.500
Bartlett's Test of Sphericity	Approx. Chi-Square	142.586
	df	1
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.548	77.422	77.422	1.548	77.422	77.422
2	.452	22.578	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
AD1	.880
AD2	.880

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.707	2

Correlations

		HP1	HP2	HP3	HP4	HP
HP1	Pearson Correlation	1	.461**	.338**	.391**	.697**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	401	401	401	401	401
HP2	Pearson Correlation	.461**	1	.631**	.495**	.815**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	401	401	401	401	401
HP3	Pearson Correlation	.338**	.631**	1	.635**	.824**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	401	401	401	401	401
HP4	Pearson Correlation	.391**	.495**	.635**	1	.809**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	401	401	401	401	401
HP	Pearson Correlation	.697**	.815**	.824**	.809**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.723
Bartlett's Test of Sphericity	Approx. Chi-Square	531.032
	df	6
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.491	62.284	62.284	2.491	62.284	62.284
2	.715	17.876	80.161			
3	.495	12.381	92.542			
4	.298	7.458	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
HP1	.660
HP2	.830
HP3	.845
HP4	.808

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.793	4

Correlations

		TL1	TL2	TL3	TL
TL1	Pearson Correlation	1	.460**	.304**	.739**
	Sig. (2-tailed)		.000	.000	.000
	N	401	401	401	401

TL2	Pearson Correlation	.460**	1	.558**	.851**
	Sig. (2-tailed)	.000		.000	.000
	N	401	401	401	401
TL3	Pearson Correlation	.304**	.558**	1	.785**
	Sig. (2-tailed)	.000	.000		.000
	N	401	401	401	401
TL	Pearson Correlation	.739**	.851**	.785**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.616
Bartlett's Test of Sphericity	Approx. Chi-Square	244.976
	df	3
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.889	62.981	62.981	1.889	62.981	62.981
2	.705	23.485	86.466			
3	.406	13.534	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
TL1	.718
TL2	.867
TL3	.789

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.703	3

Correlations

		Pr1	Pr2	Pr3	Pr4	Pr5	Pr6	Pr_A
Pr1	Pearson Correlation	1	.628**	.558**	.448**	.411**	.306**	.720**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	401	401	401	401	401	401	401
Pr2	Pearson Correlation	.628**	1	.649**	.488**	.481**	.309**	.766**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	401	401	401	401	401	401	401
Pr3	Pearson Correlation	.558**	.649**	1	.540**	.467**	.356**	.773**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	401	401	401	401	401	401	401
Pr4	Pearson Correlation	.448**	.488**	.540**	1	.648**	.517**	.804**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	401	401	401	401	401	401	401
Pr5	Pearson Correlation	.411**	.481**	.467**	.648**	1	.568**	.794**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	401	401	401	401	401	401	401
Pr6	Pearson Correlation	.306**	.309**	.356**	.517**	.568**	1	.695**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	401	401	401	401	401	401	401
Pr_A	Pearson Correlation	.720**	.766**	.773**	.804**	.794**	.695**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	401	401	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.838
Bartlett's Test of Sphericity	Approx. Chi-Square	1029.900
	df	15
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.472	57.869	57.869	3.472	57.869	57.869
2	.956	15.938	73.807			
3	.477	7.947	81.753			
4	.423	7.047	88.800			
5	.370	6.168	94.968			
6	.302	5.032	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
Pr1	.735
Pr2	.787
Pr3	.790
Pr4	.804
Pr5	.785
Pr6	.652

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.850	6

Correlations

		Pd1	Pd2	Pd3	Pd4	Pd
Pd1	Pearson Correlation	1	.714**	.593**	.517**	.851**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	401	401	401	401	401
Pd2	Pearson Correlation	.714**	1	.602**	.516**	.855**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	401	401	401	401	401
Pd3	Pearson Correlation	.593**	.602**	1	.656**	.849**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	401	401	401	401	401
Pd4	Pearson Correlation	.517**	.516**	.656**	1	.791**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	401	401	401	401	401
Pd	Pearson Correlation	.851**	.855**	.849**	.791**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.778
Bartlett's Test of Sphericity	Approx. Chi-Square	744.330
	df	6
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.801	70.027	70.027	2.801	70.027	70.027
2	.584	14.588	84.615			
3	.330	8.240	92.854			
4	.286	7.146	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
Pd1	.846
Pd2	.849
Pd3	.853
Pd4	.797

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.857	4

Correlations

		CC1	CC2	CC3	CC4	CC
CC1	Pearson Correlation	1	.610**	.584**	.399**	.810**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	401	401	401	401	401
CC2	Pearson Correlation	.610**	1	.699**	.462**	.859**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	401	401	401	401	401
CC3	Pearson Correlation	.584**	.699**	1	.485**	.859**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	401	401	401	401	401
CC4	Pearson Correlation	.399**	.462**	.485**	1	.707**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	401	401	401	401	401
CC	Pearson Correlation	.810**	.859**	.859**	.707**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.790
Bartlett's Test of Sphericity	Approx. Chi-Square	610.415
	df	6
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.634	65.851	65.851	2.634	65.851	65.851
2	.637	15.935	81.787			
3	.430	10.743	92.529			
4	.299	7.471	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
CC1	.804
CC2	.867
CC3	.865
CC4	.698

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.826	4

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.790
Bartlett's Test of Sphericity	Approx. Chi-Square	610.415
	df	6
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.634	65.851	65.851	2.634	65.851	65.851
2	.637	15.935	81.787			
3	.430	10.743	92.529			
4	.299	7.471	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
CC1	.804
CC2	.867
CC3	.865
CC4	.698

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.826	4

Correlations

		BPC1	BPC3	BPC4	BPC_A
BPC1	Pearson Correlation	1	.307**	.360**	.712**
	Sig. (2-tailed)		.000	.000	.000
	N	401	401	401	401
BPC3	Pearson Correlation	.307**	1	.581**	.803**
	Sig. (2-tailed)	.000		.000	.000
	N	401	401	401	401

BPC4	Pearson Correlation	.360**	.581**	1	.830**
	Sig. (2-tailed)	.000	.000		.000
	N	401	401	401	401
BPC_A	Pearson Correlation	.712**	.803**	.830**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.614
Bartlett's Test of Sphericity	Approx. Chi-Square	225.697
	df	3
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.844	61.473	61.473	1.844	61.473	61.473
2	.740	24.675	86.148			
3	.416	13.852	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
BPC1	.662
BPC3	.826
BPC4	.850

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.781	3

Correlations

		CO3	CO4	CO5	CO6	CO7	CO8	CO_A
CO3	Pearson Correlation	1	.585**	.384**	.388**	.452**	.463**	.748**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	401	401	401	401	401	401	401
CO4	Pearson Correlation	.585**	1	.404**	.366**	.437**	.403**	.733**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	401	401	401	401	401	401	401
CO5	Pearson Correlation	.384**	.404**	1	.406**	.402**	.343**	.665**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	401	401	401	401	401	401	401
CO6	Pearson Correlation	.388**	.366**	.406**	1	.514**	.436**	.708**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	401	401	401	401	401	401	401
CO7	Pearson Correlation	.452**	.437**	.402**	.514**	1	.672**	.791**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	401	401	401	401	401	401	401
CO8	Pearson Correlation	.463**	.403**	.343**	.436**	.672**	1	.749**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	401	401	401	401	401	401	401
CO_A	Pearson Correlation	.748**	.733**	.665**	.708**	.791**	.749**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	401	401	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.823
Bartlett's Test of Sphericity	Approx. Chi-Square	815.353
	df	15
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.229	53.820	53.820	3.229	53.820	53.820
2	.788	13.137	66.957			
3	.704	11.733	78.690			
4	.549	9.158	87.848			
5	.415	6.916	94.764			
6	.314	5.236	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
CO3	.746
CO4	.725
CO5	.650
CO6	.702
CO7	.803
CO8	.765

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.827	6

Correlations

		IO3	IO4	IO5	IO_A
IO3	Pearson Correlation	1	.481**	.467**	.792**
	Sig. (2-tailed)		.000	.000	.000
	N	401	401	401	401
IO4	Pearson Correlation	.481**	1	.550**	.826**
	Sig. (2-tailed)	.000		.000	.000
	N	401	401	401	401
IO5	Pearson Correlation	.467**	.550**	1	.830**
	Sig. (2-tailed)	.000	.000		.000
	N	401	401	401	401
IO_A	Pearson Correlation	.792**	.826**	.830**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.686
Bartlett's Test of Sphericity	Approx. Chi-Square	279.903
	df	3
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.000	66.651	66.651	2.000	66.651	66.651
2	.551	18.380	85.032			
3	.449	14.968	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
IO3	.787
IO4	.834
IO5	.827

Extraction Method:
Principal Component
Analysis.
a. 1 components
extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.749	3

Correlations

		EC1	EC2	EC3	EC
EC1	Pearson Correlation	1	.429**	.431**	.778**
	Sig. (2-tailed)		.000	.000	.000
	N	401	401	401	401
EC2	Pearson Correlation	.429**	1	.513**	.816**
	Sig. (2-tailed)	.000		.000	.000
	N	401	401	401	401
EC3	Pearson Correlation	.431**	.513**	1	.803**
	Sig. (2-tailed)	.000	.000		.000
	N	401	401	401	401
EC	Pearson Correlation	.778**	.816**	.803**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.673
Bartlett's Test of Sphericity	Approx. Chi-Square	233.284
	df	3
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.917	63.894	63.894	1.917	63.894	63.894
2	.596	19.861	83.754			
3	.487	16.246	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
EC1	.766
EC2	.815
EC3	.816

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.716	3

Correlations

		KIM1	KIM2	KIM3	KIM4	KIM5	KIM
KIM1	Pearson Correlation	1	.638**	.549**	.444**	.463**	.783**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	401	401	401	401	401	401
KIM2	Pearson Correlation	.638**	1	.574**	.459**	.485**	.796**
	Sig. (2-tailed)	.000		.000	.000	.000	.000

	N	401	401	401	401	401	401
KIM3	Pearson Correlation	.549**	.574**	1	.474**	.487**	.781**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	401	401	401	401	401	401
KIM4	Pearson Correlation	.444**	.459**	.474**	1	.636**	.776**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	401	401	401	401	401	401
KIM5	Pearson Correlation	.463**	.485**	.487**	.636**	1	.790**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	401	401	401	401	401	401
KIM	Pearson Correlation	.783**	.796**	.781**	.776**	.790**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	401	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.821
Bartlett's Test of Sphericity	Approx. Chi-Square	793.085
	df	10
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.084	61.687	61.687	3.084	61.687	61.687
2	.732	14.630	76.317			
3	.461	9.211	85.529			
4	.366	7.329	92.858			
5	.357	7.142	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
KIM1	.790
KIM2	.807
KIM3	.786
KIM4	.763
KIM5	.780

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.844	5

Correlations

		SIP1	SIP2	SIP3	SIP4	SIP
SIP1	Pearson Correlation	1	.483**	.374**	.344**	.716**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	401	401	401	401	401
SIP2	Pearson Correlation	.483**	1	.551**	.475**	.819**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	401	401	401	401	401
SIP3	Pearson Correlation	.374**	.551**	1	.487**	.780**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	401	401	401	401	401
SIP4	Pearson Correlation	.344**	.475**	.487**	1	.756**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	401	401	401	401	401
SIP	Pearson Correlation	.716**	.819**	.780**	.756**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.762
Bartlett's Test of Sphericity	Approx. Chi-Square	404.237
	df	6
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.364	59.103	59.103	2.364	59.103	59.103
2	.684	17.109	76.212			
3	.527	13.168	89.380			
4	.425	10.620	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
SIP1	.699
SIP2	.828
SIP3	.793
SIP4	.748

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Reliability Statistics

Cronbach's Alpha	N of Items
.767	4

Correlations

		BP4	BP5	BP6	BP7	BP_A
BP4	Pearson Correlation	1	.496**	.378**	.307**	.720**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	401	401	401	401	401
BP5	Pearson Correlation	.496**	1	.315**	.330**	.739**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	401	401	401	401	401
BP6	Pearson Correlation	.378**	.315**	1	.470**	.700**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	401	401	401	401	401
BP7	Pearson Correlation	.307**	.330**	.470**	1	.664**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	401	401	401	401	401
BP_A	Pearson Correlation	.720**	.739**	.700**	.664**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	401	401	401	401	401

**. Correlation is significant at the 0.01 level (2-tailed).

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.703
Bartlett's Test of Sphericity	Approx. Chi-Square	231.561
	df	6
	Sig.	.000

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.008	50.206	50.206	2.008	50.206	50.206
2	.766	19.145	69.351			
3	.724	18.111	87.462			
4	.502	12.538	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
BP4	.757
BP5	.783
BP6	.628
BP7	.654

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

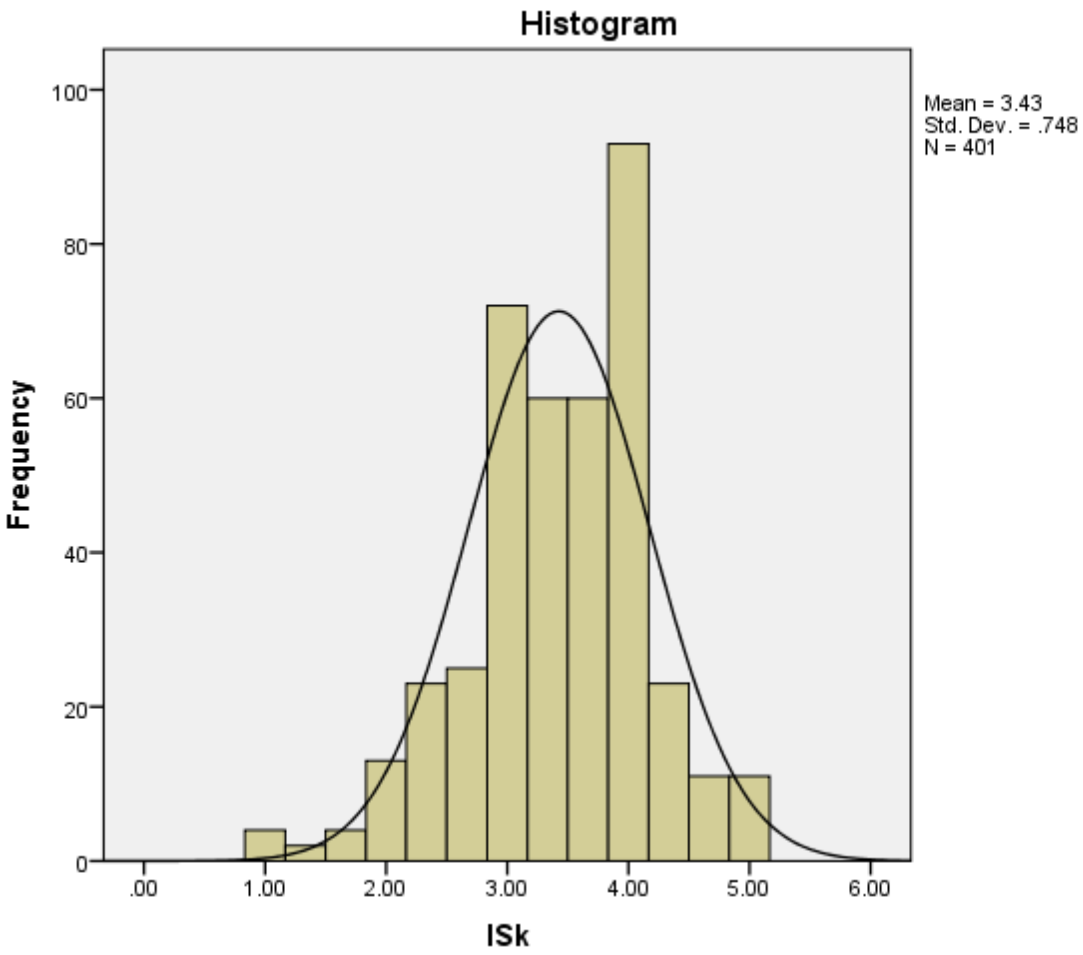
Reliability Statistics

Cronbach's Alpha	N of Items
.857	4

Statistics

ISk

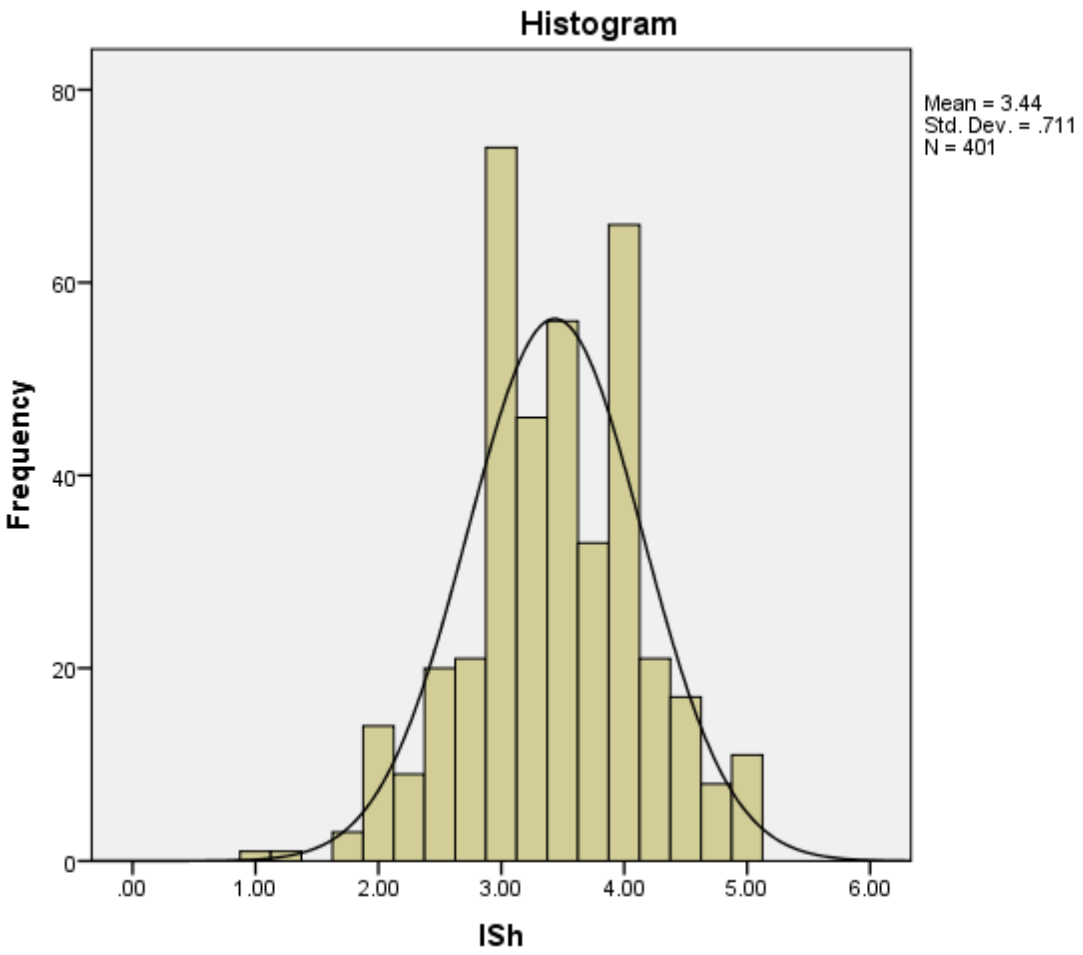
N	Valid	401
	Missing	0
Skewness		-.491
Std. Error of Skewness		.122
Kurtosis		.478
Std. Error of Kurtosis		.243



Statistics

ISh

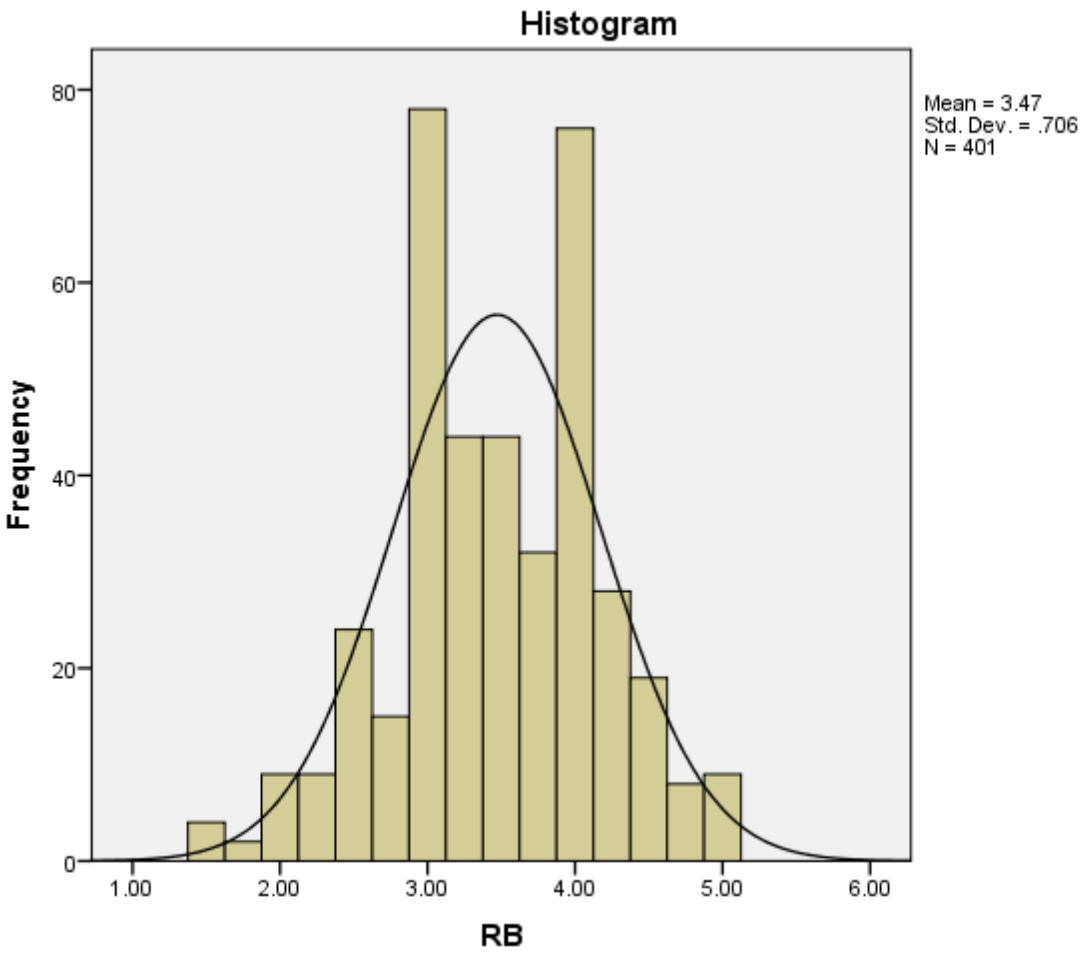
N	Valid	401
	Missing	0
Skewness		-.139
Std. Error of Skewness		.122
Kurtosis		.056
Std. Error of Kurtosis		.243



Statistics

RB

N	Valid	401
	Missing	0
Skewness		-.191
Std. Error of Skewness		.122
Kurtosis		-.183
Std. Error of Kurtosis		.243



Statistics

PI

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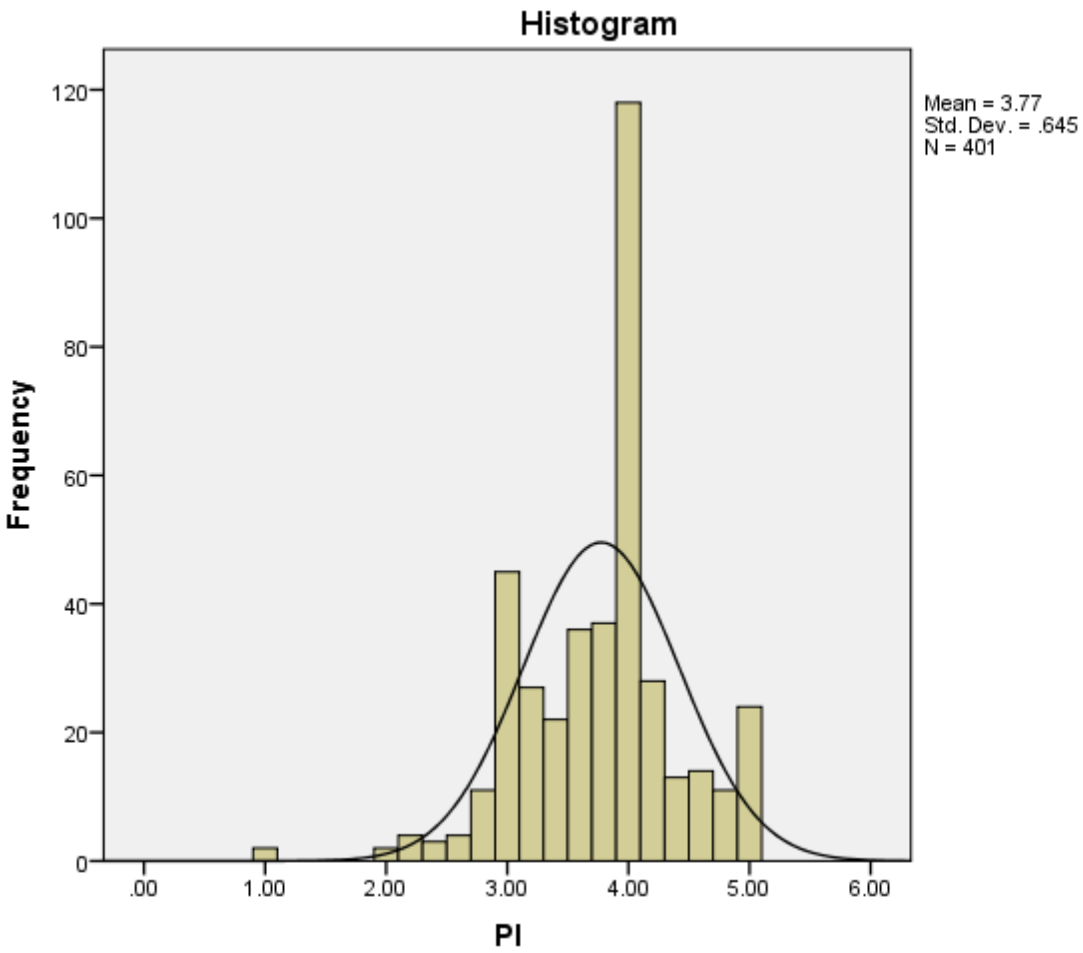
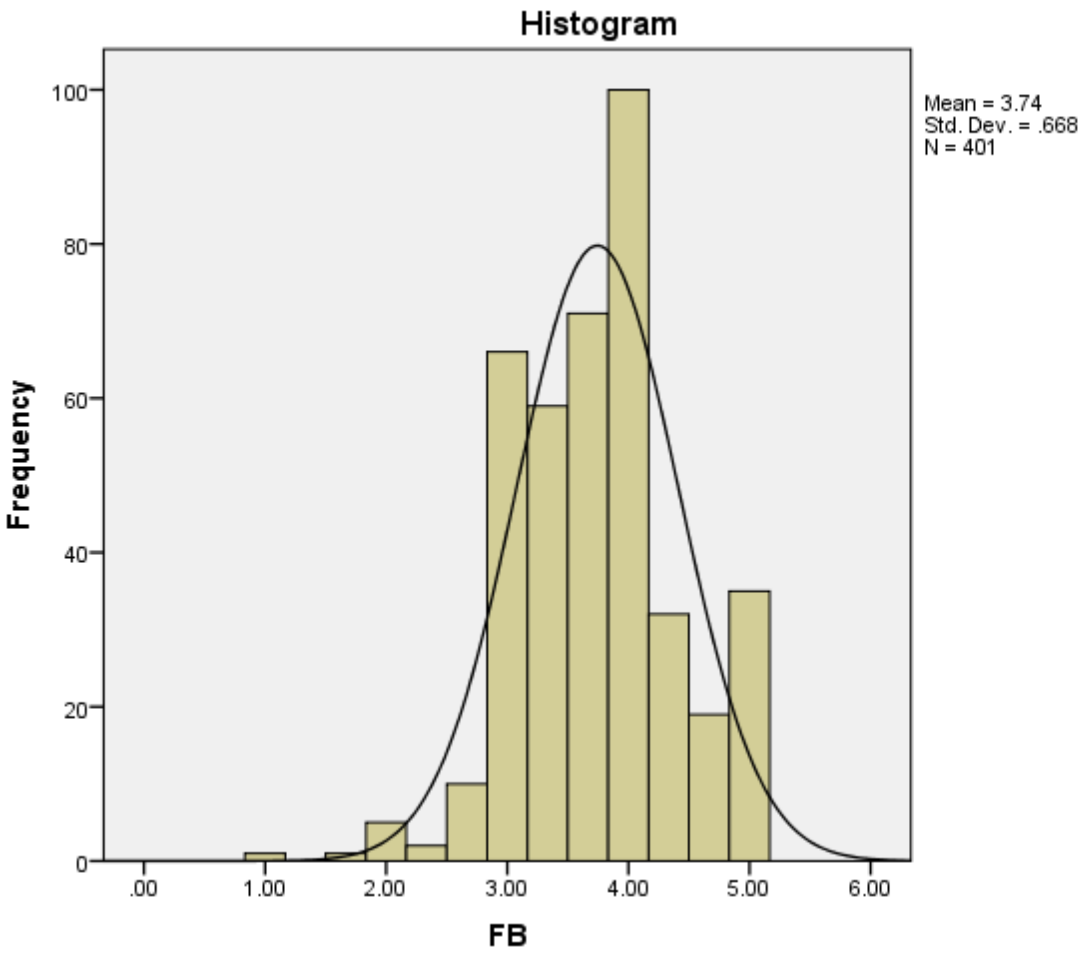
Skewness		-.474
Std. Error of Skewness		.122
Kurtosis		1.170
Std. Error of Kurtosis		.243



Statistics

FB

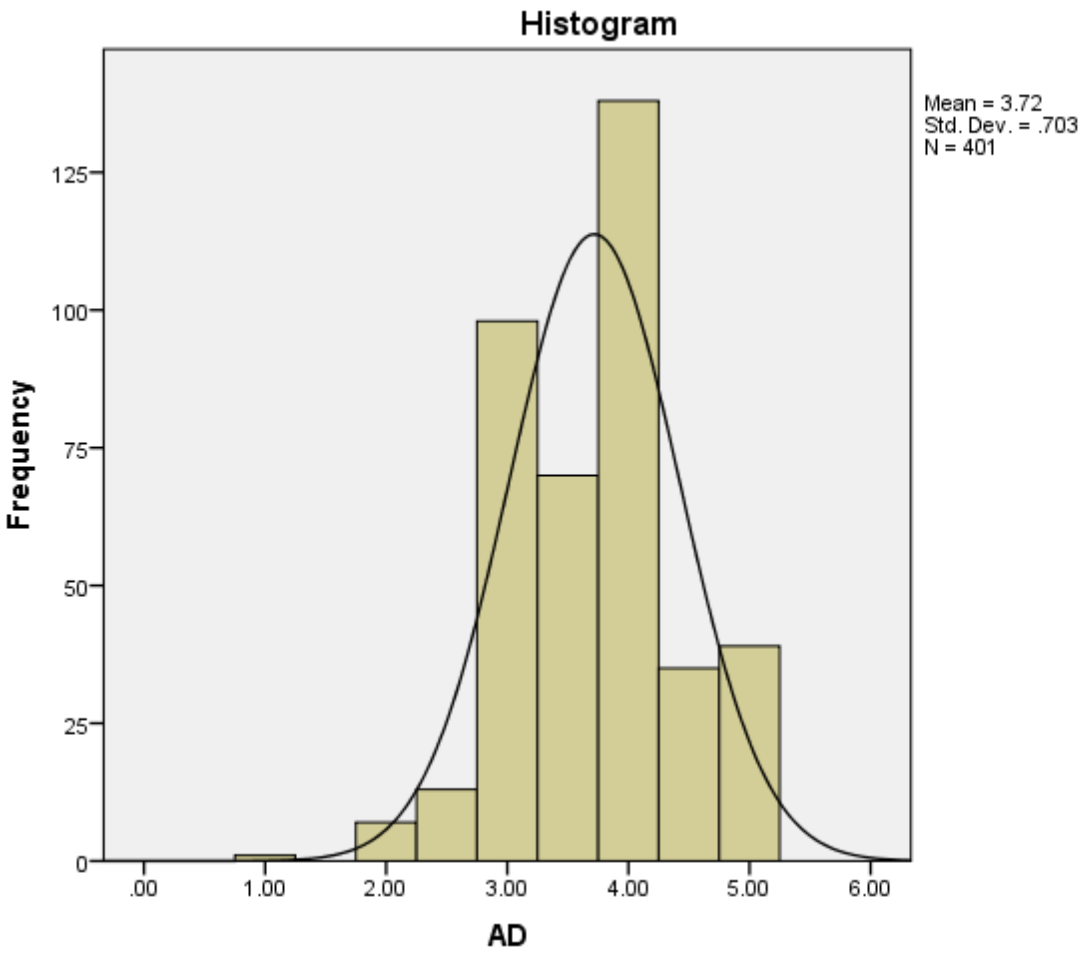
N	Valid	401
	Missing	0
Skewness		-.110
Std. Error of Skewness		.122
Kurtosis		.415
Std. Error of Kurtosis		.243



Statistics

AD

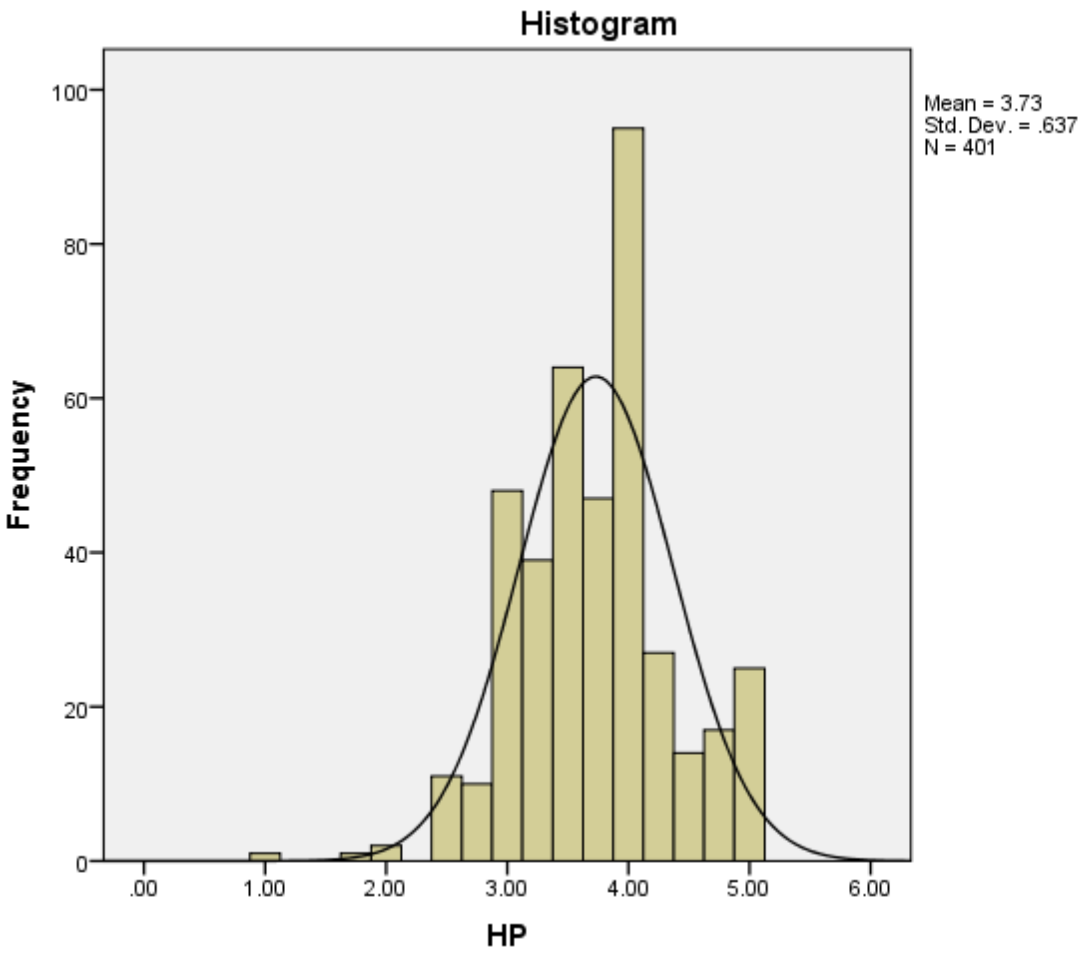
N	Valid	401
	Missing	0
Skewness		-.103
Std. Error of Skewness		.122
Kurtosis		-.012
Std. Error of Kurtosis		.243



Statistics

HP

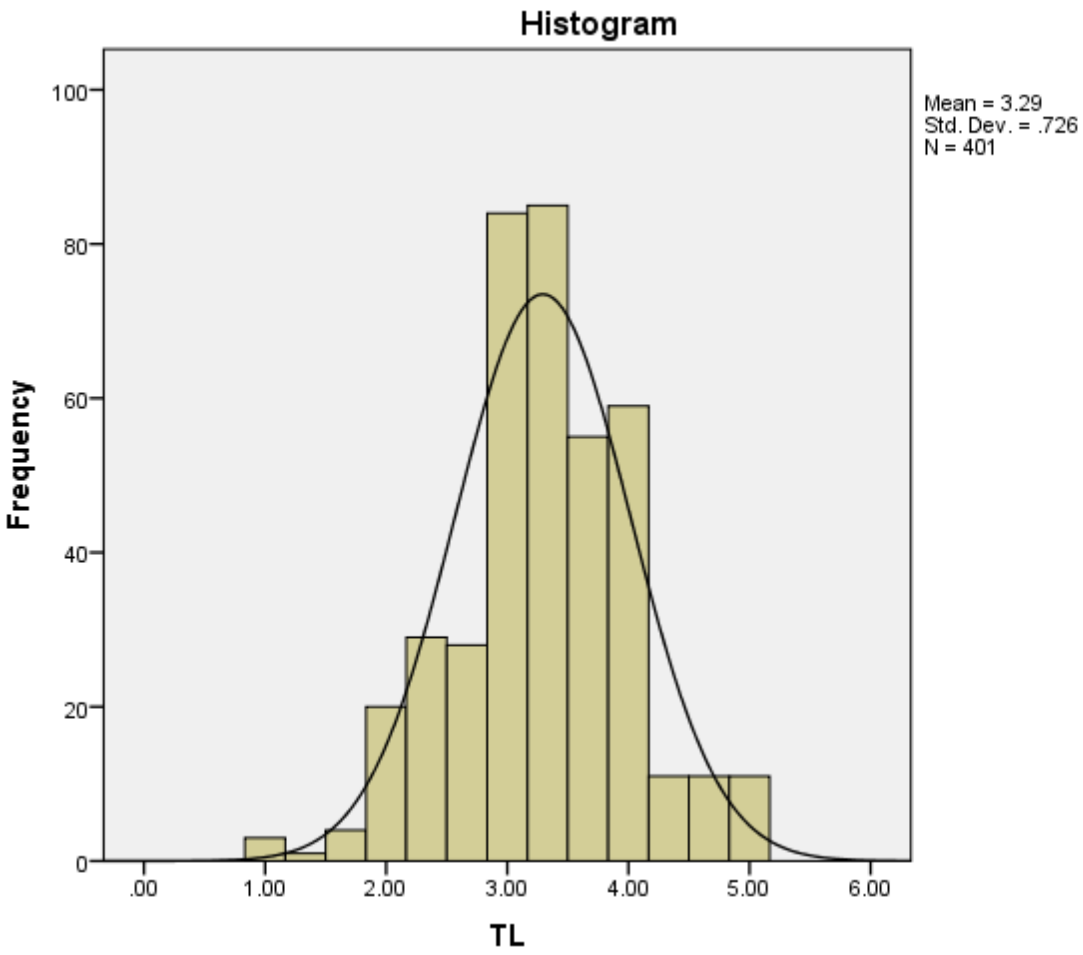
N	Valid	401
	Missing	0
Skewness		-.111
Std. Error of Skewness		.122
Kurtosis		.531
Std. Error of Kurtosis		.243



Statistics

TL

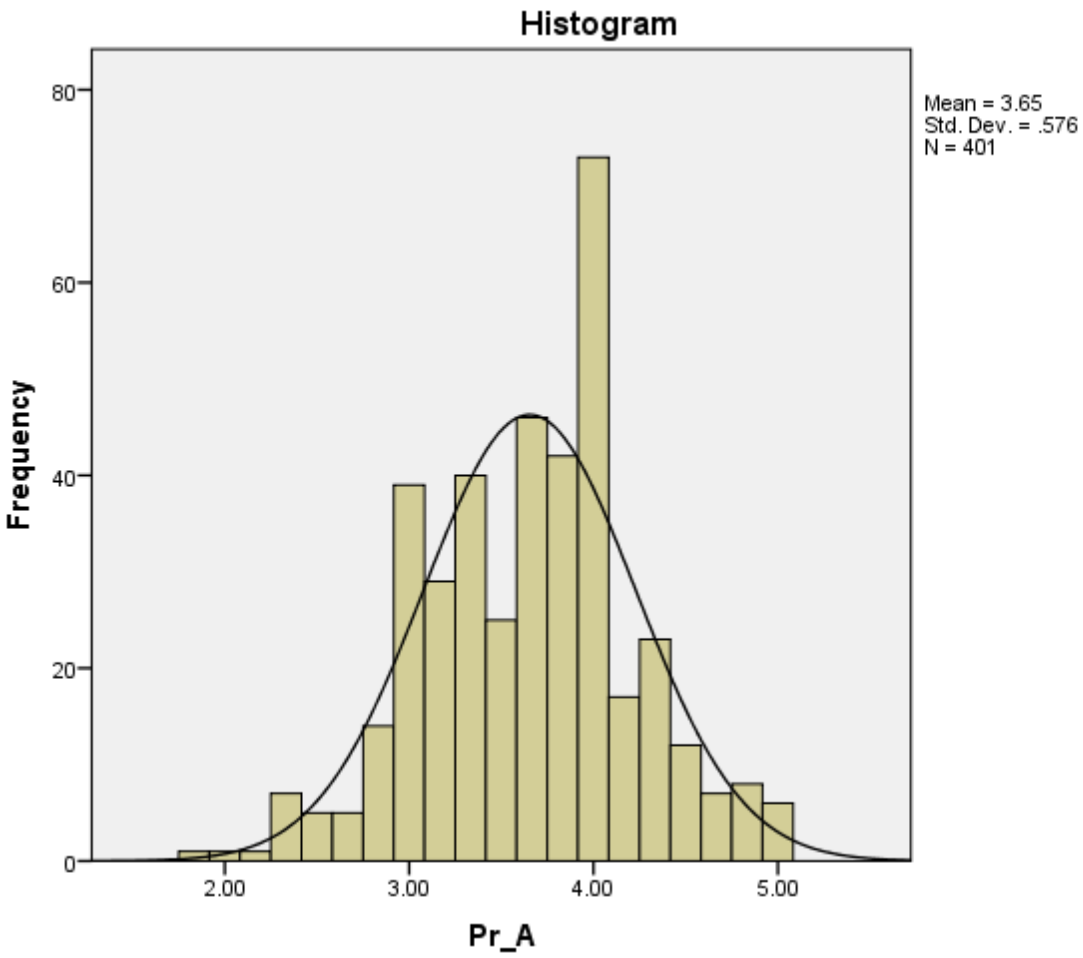
N	Valid	401
	Missing	0
Skewness		-.126
Std. Error of Skewness		.122
Kurtosis		.387
Std. Error of Kurtosis		.243



Statistics

Pr_A

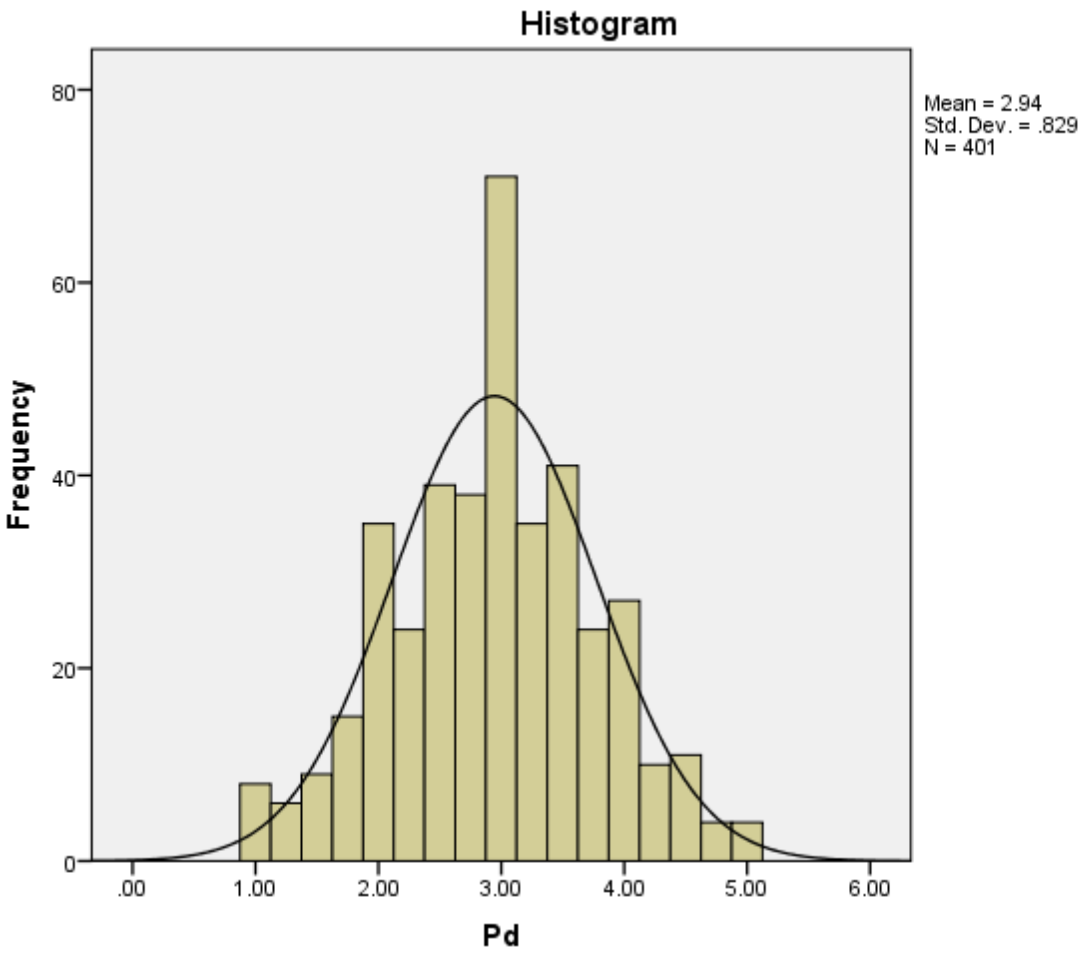
N	Valid	401
	Missing	0
Skewness		-.139
Std. Error of Skewness		.122
Kurtosis		-.031
Std. Error of Kurtosis		.243



Statistics

Pd

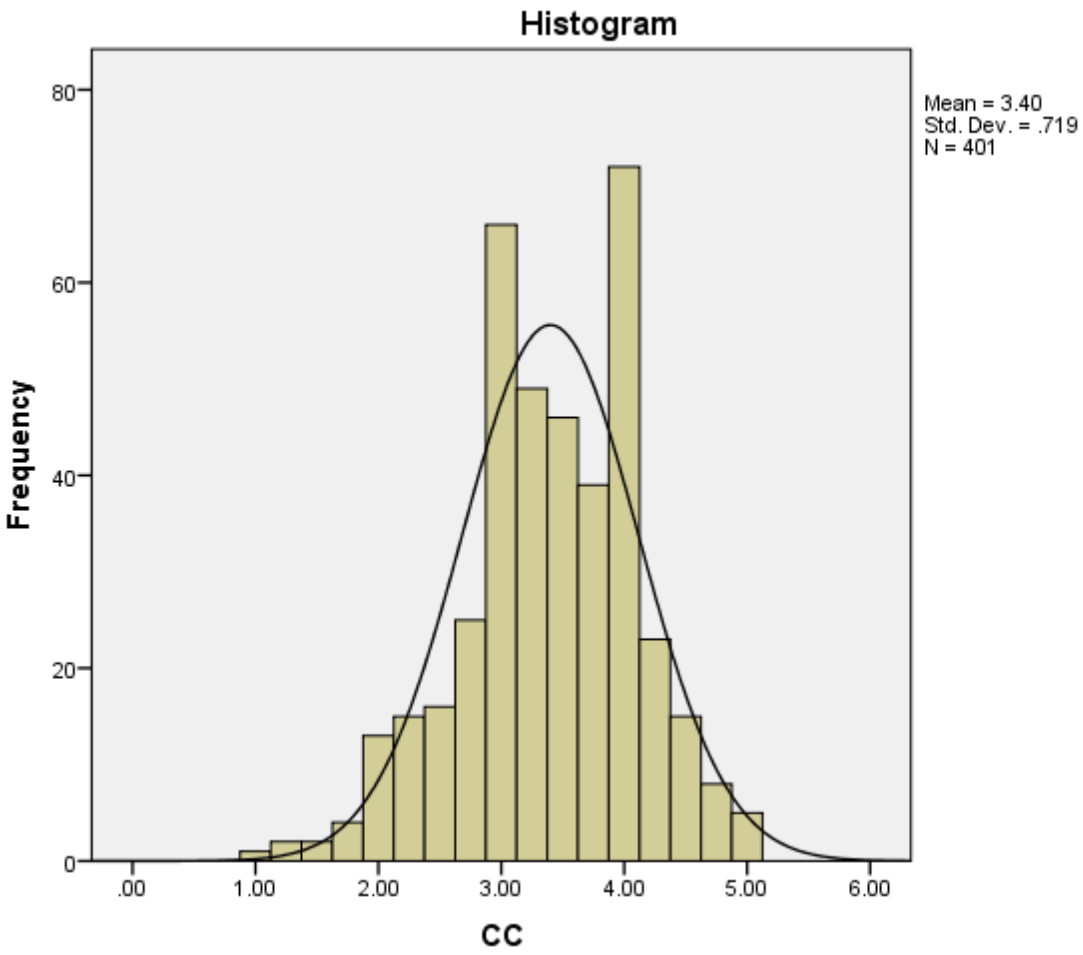
N	Valid	401
	Missing	0
Skewness		-.032
Std. Error of Skewness		.122
Kurtosis		-.210
Std. Error of Kurtosis		.243



Statistics

CC

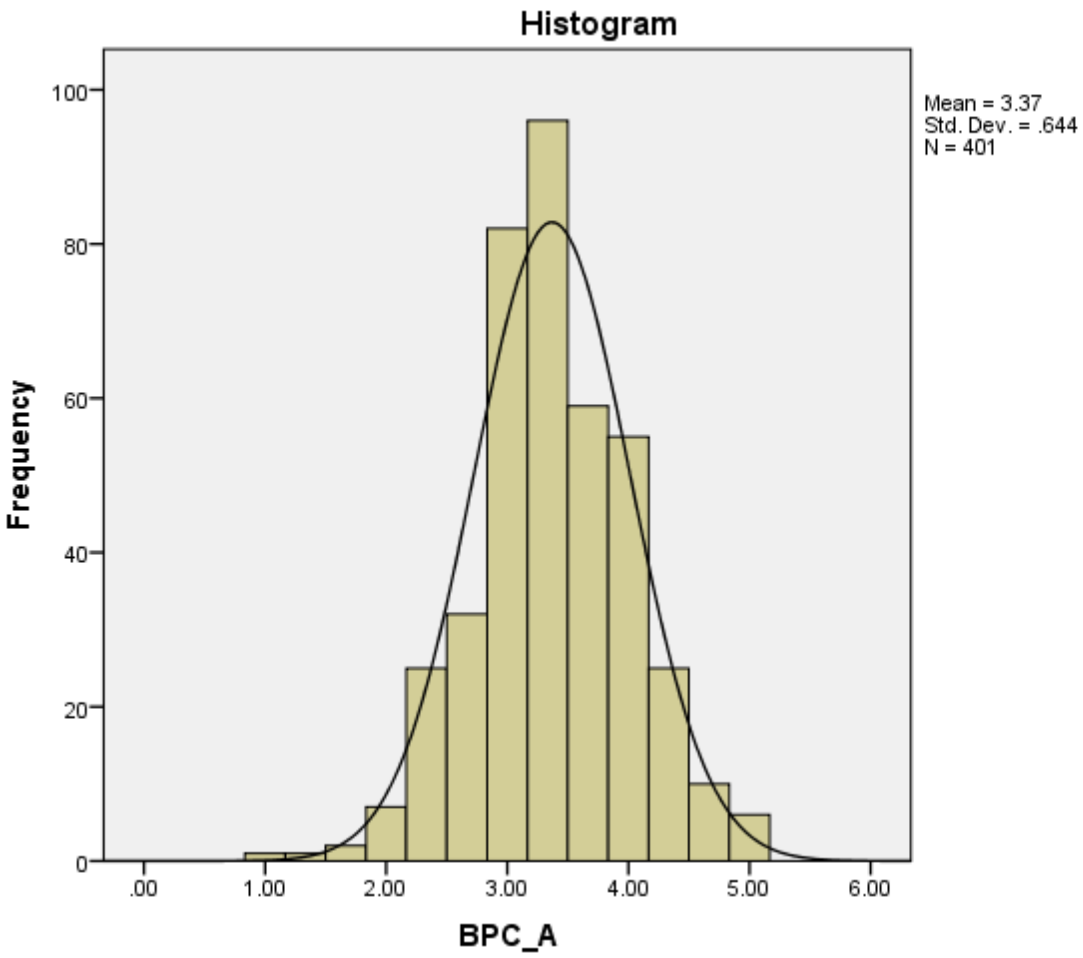
N	Valid	401
	Missing	0
Skewness		-.366
Std. Error of Skewness		.122
Kurtosis		.082
Std. Error of Kurtosis		.243



Statistics

BPC_A

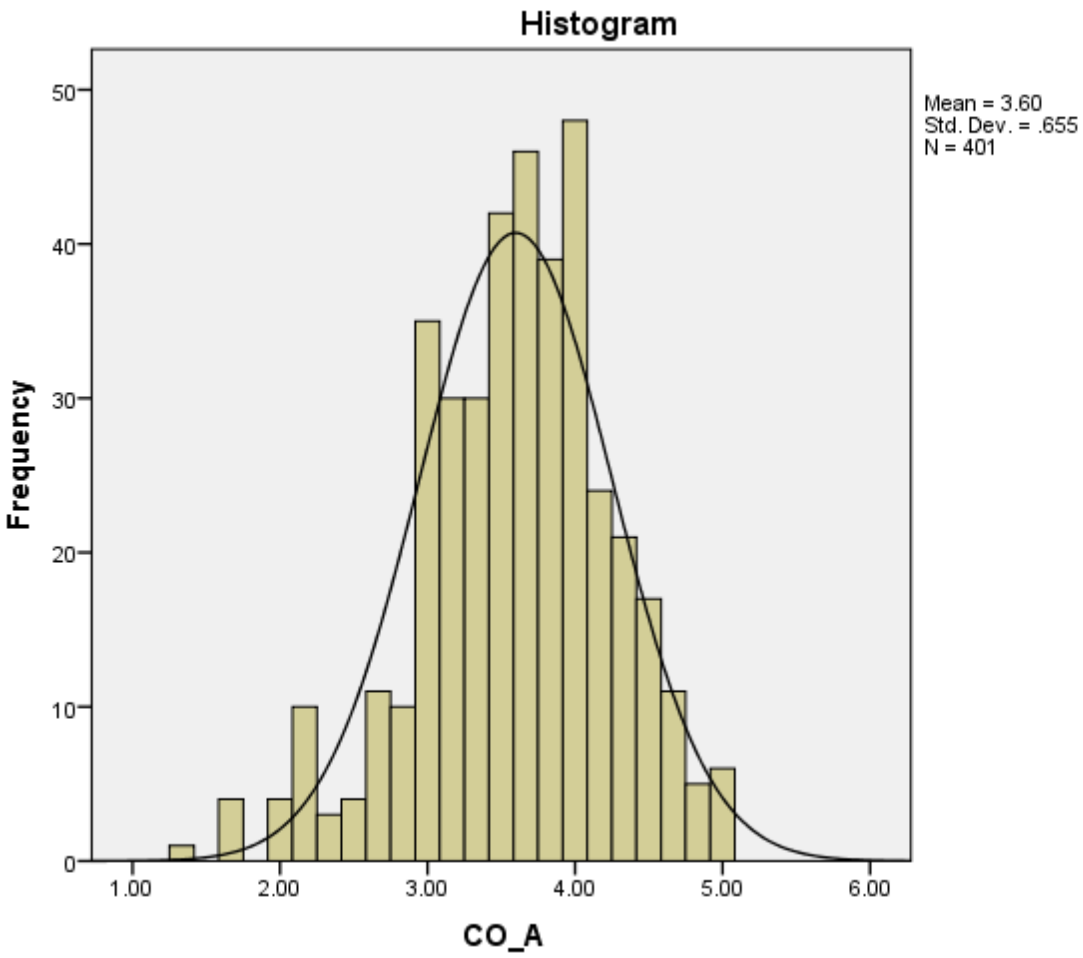
N	Valid	401
	Missing	0
Skewness		-.061
Std. Error of Skewness		.122
Kurtosis		.373
Std. Error of Kurtosis		.243



Statistics

CO_A

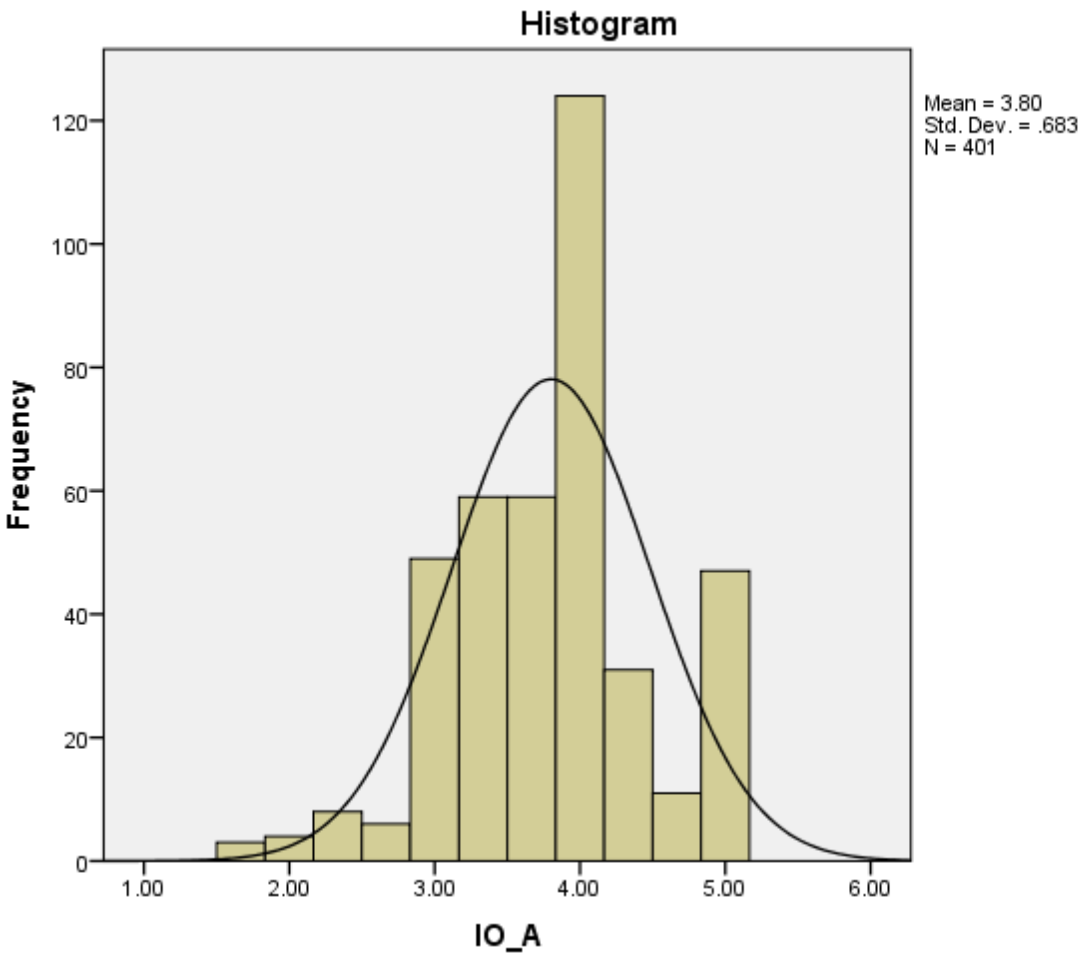
N	Valid	401
	Missing	0
Skewness		-.471
Std. Error of Skewness		.122
Kurtosis		.447
Std. Error of Kurtosis		.243



Statistics

IO_A

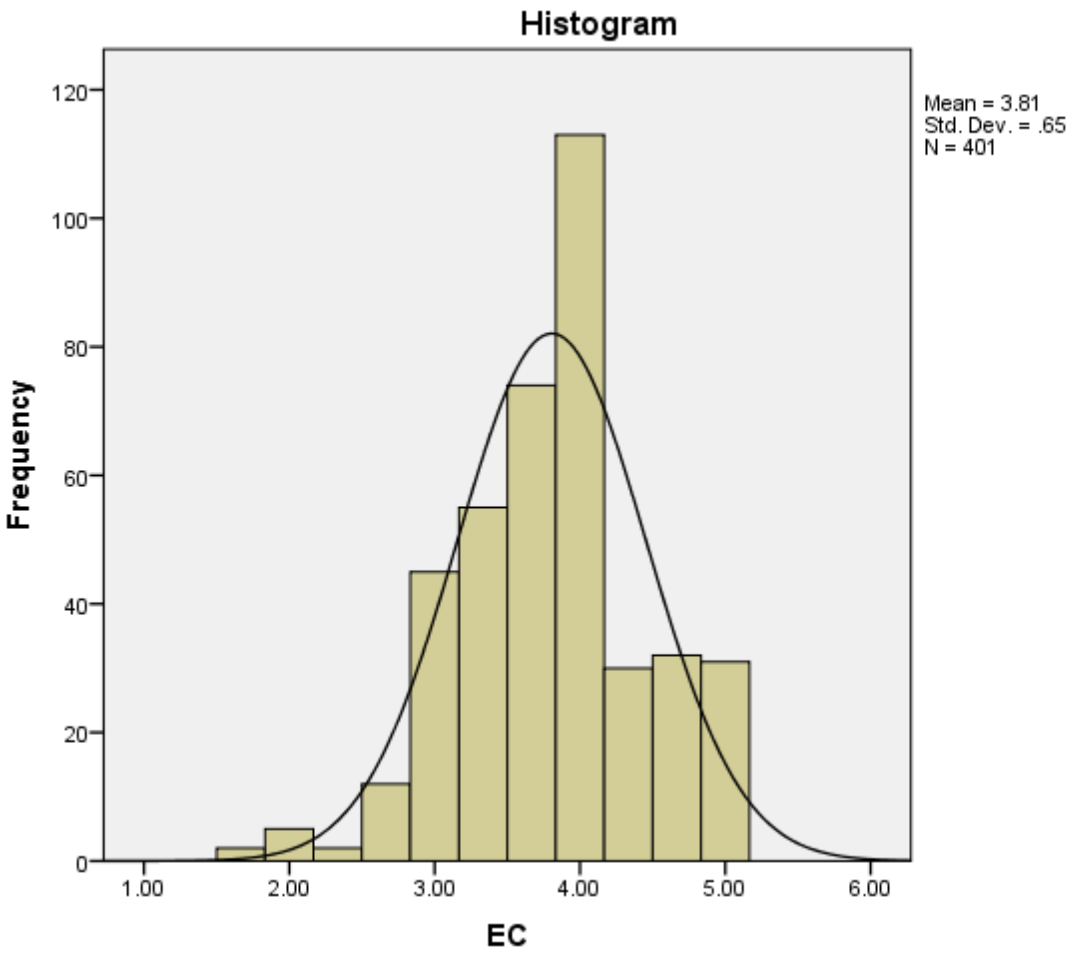
N	Valid	401
	Missing	0
Skewness		-.192
Std. Error of Skewness		.122
Kurtosis		.251
Std. Error of Kurtosis		.243



Statistics

EC

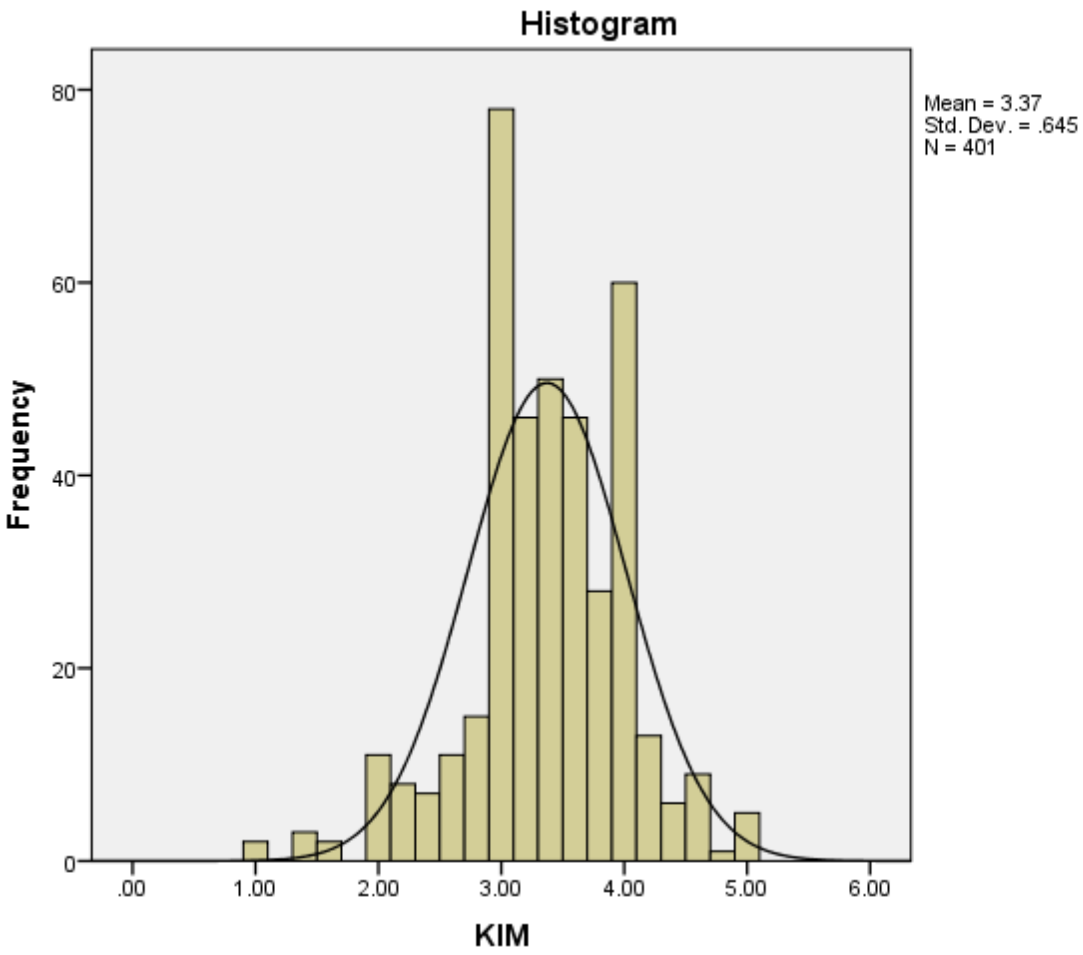
N	Valid	401
	Missing	0
Skewness		-.221
Std. Error of Skewness		.122
Kurtosis		.246
Std. Error of Kurtosis		.243



Statistics

KIM

N	Valid	401
	Missing	0
Skewness		-.445
Std. Error of Skewness		.122
Kurtosis		1.059
Std. Error of Kurtosis		.243



Statistics

SIP

N	Valid	401
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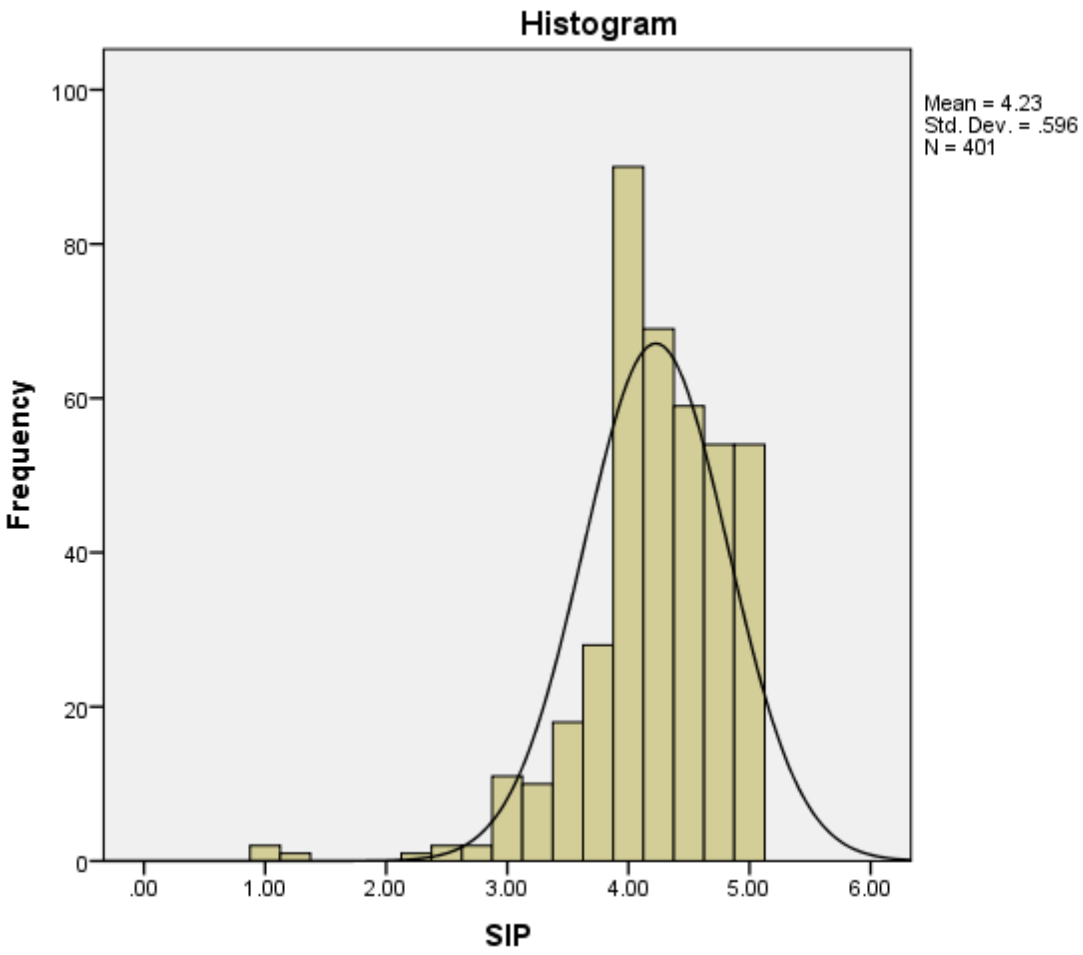
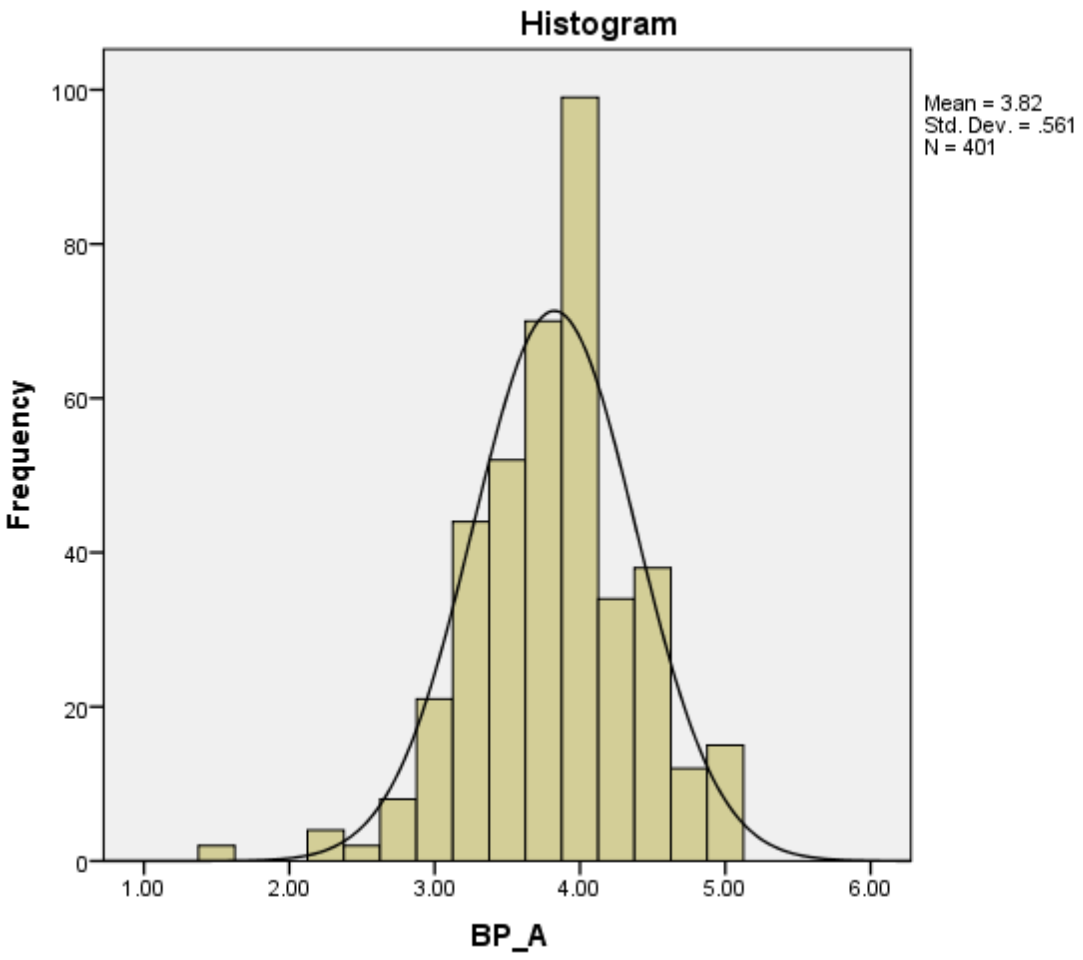
Skewness		-1.479
Std. Error of Skewness		.122
Kurtosis		5.071
Std. Error of Kurtosis		.243



Statistics

BP_A

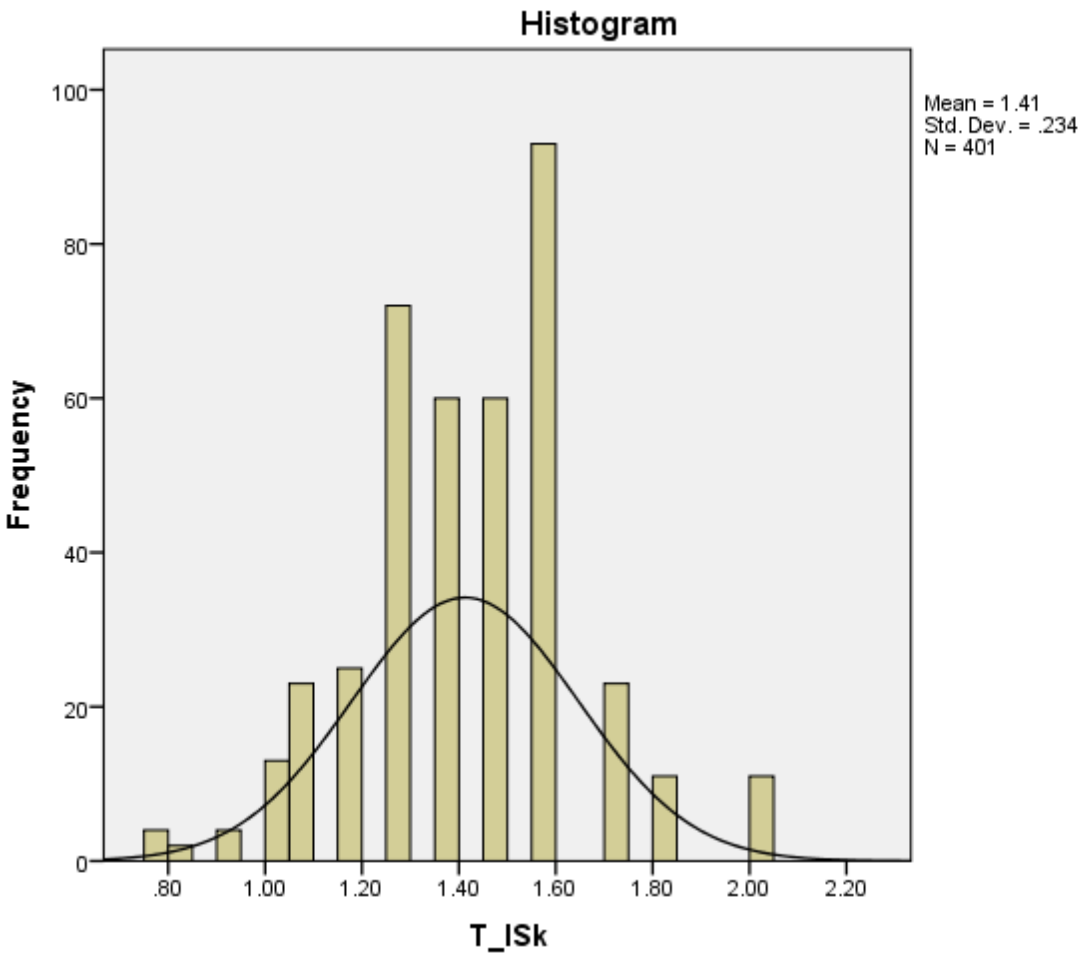
N	Valid	401
	Missing	0
Skewness		-.398
Std. Error of Skewness		.122
Kurtosis		1.123
Std. Error of Kurtosis		.243



Statistics

T_ISk

N	Valid	401
	Missing	0
Skewness		-.004
Std. Error of Skewness		.122
Kurtosis		.248
Std. Error of Kurtosis		.243

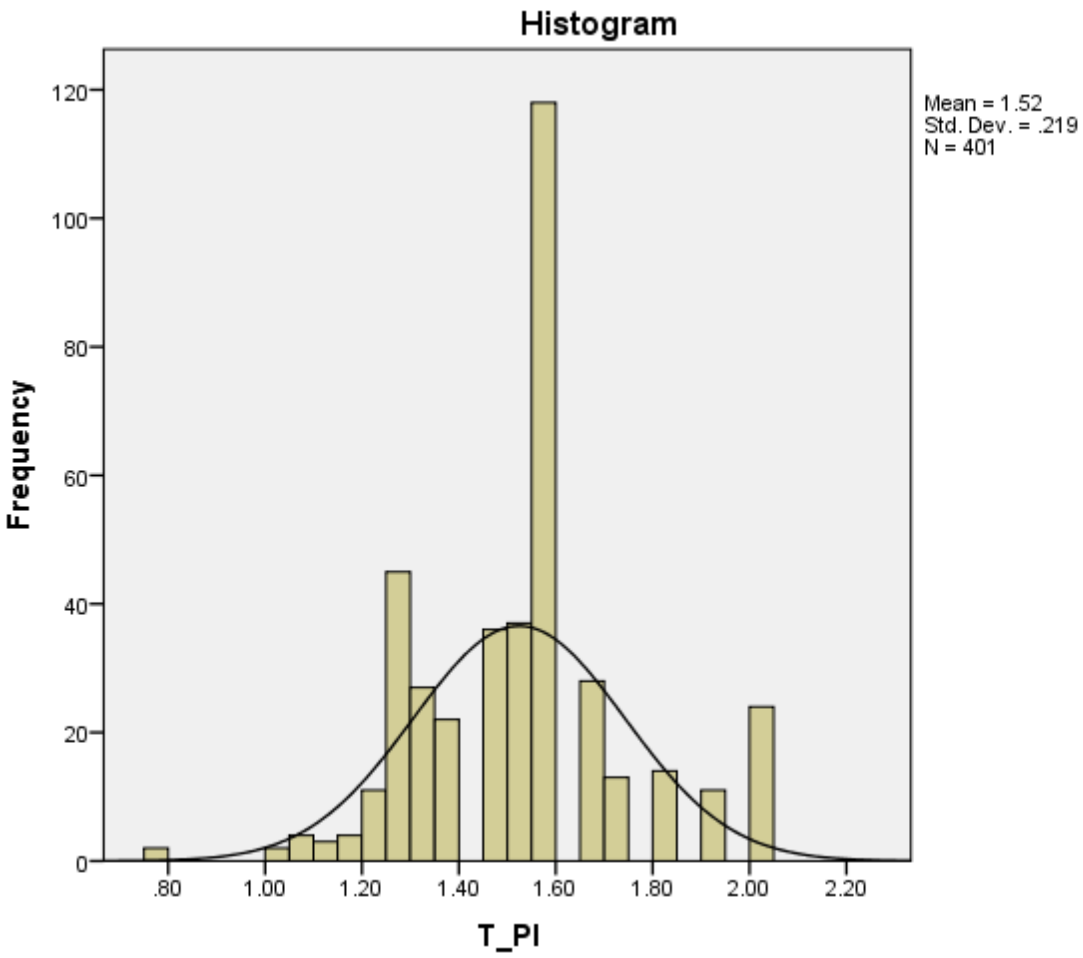


1. Reflect
2. Square root
3. Reflect

Statistics

T_PI

N	Valid	401
	Missing	0
Skewness		.088
Std. Error of Skewness		.122
Kurtosis		.461
Std. Error of Kurtosis		.243

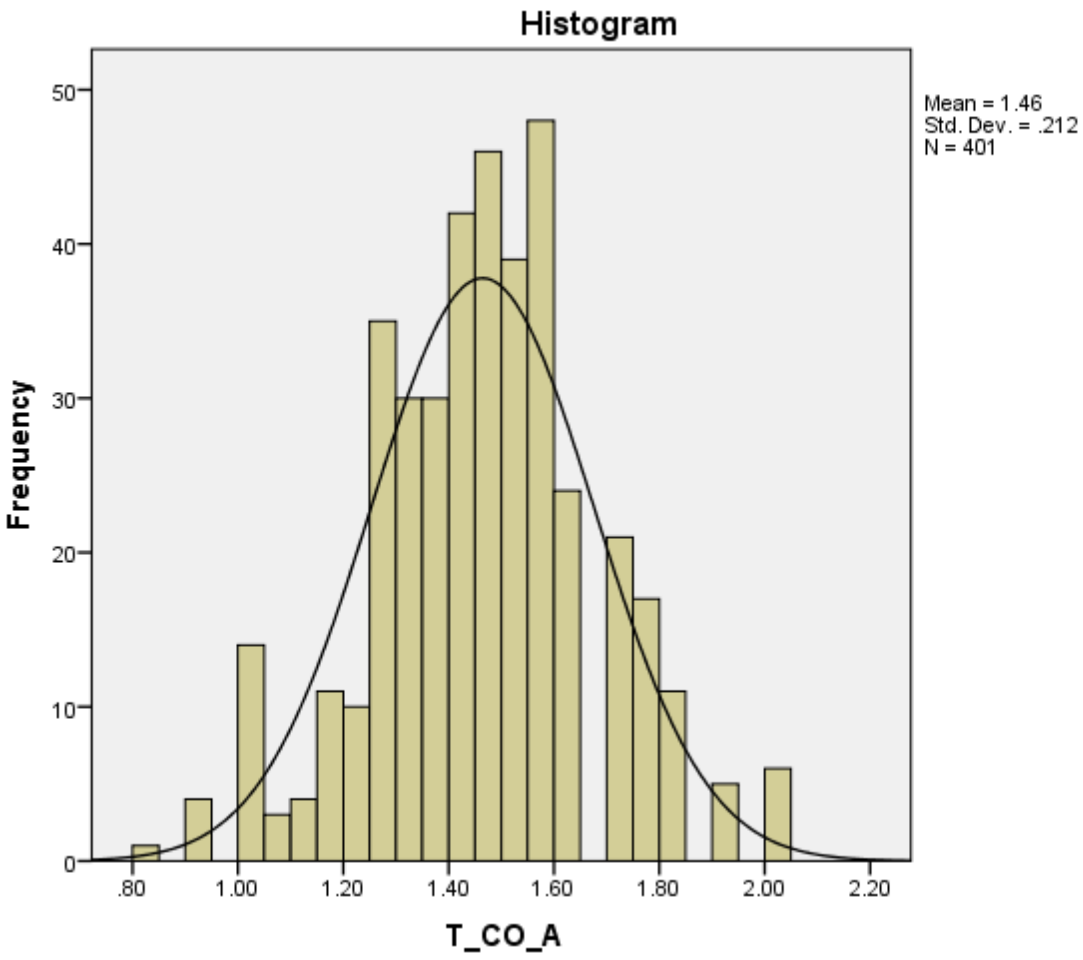


1. Reflect
2. Square root
3. Reflect

Statistics

T_CO_A

N	Valid	401
	Missing	0
Skewness		-.029
Std. Error of Skewness		.122
Kurtosis		.162
Std. Error of Kurtosis		.243



1. Reflect
2. Square root
3. Reflect

Statistics

T_KIM

N	Valid	401
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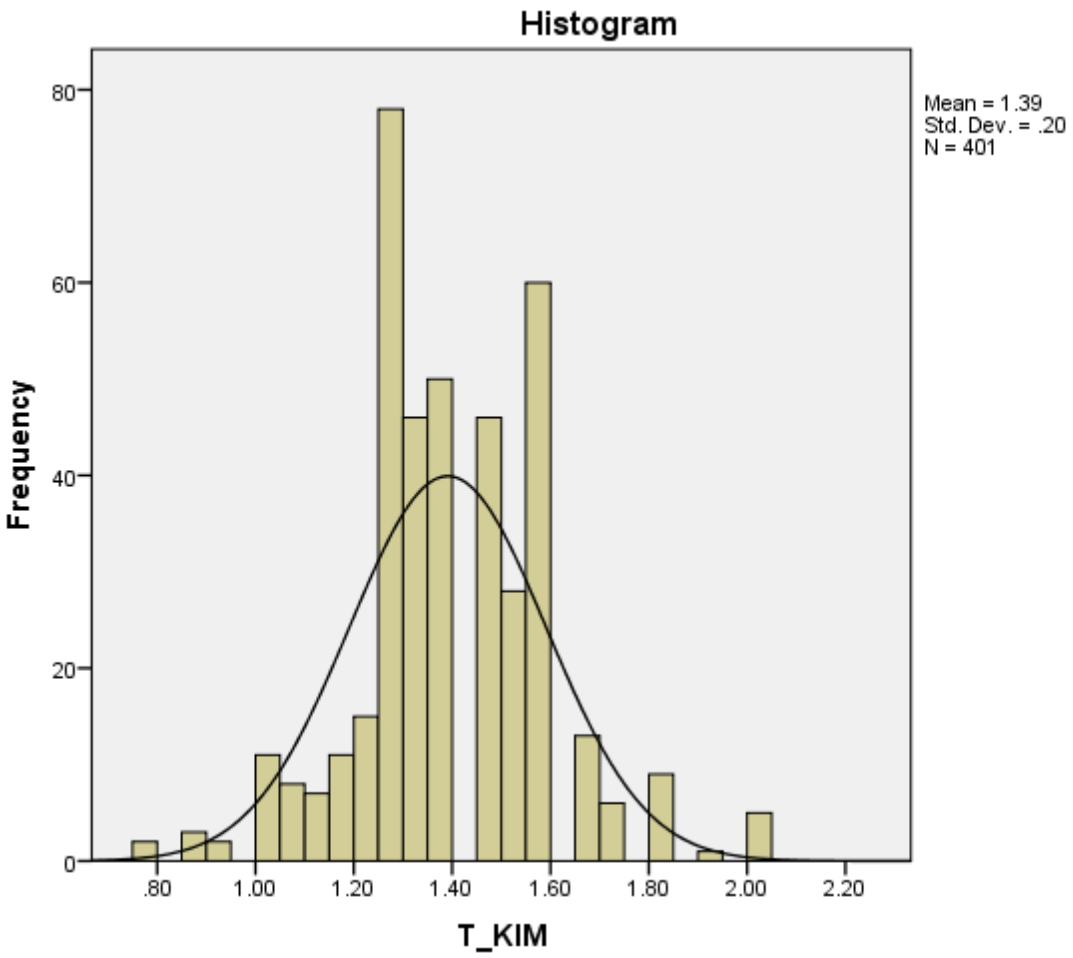
Skewness		.077
Std. Error of Skewness		.122
Kurtosis		.836
Std. Error of Kurtosis		.243



1. Reflect
2. Square root
3. Reflect

Statistics

T_SIP

N	Valid	401
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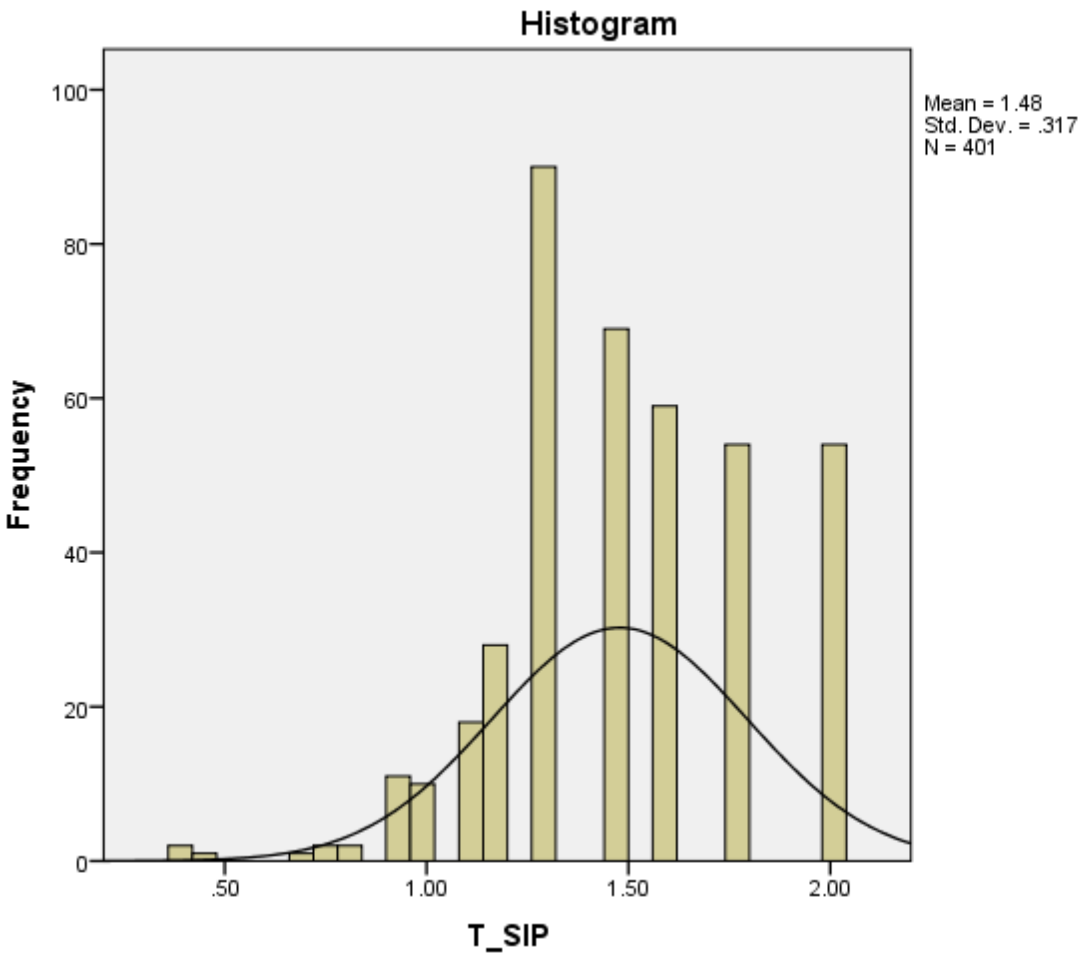
Skewness		-.145
Std. Error of Skewness		.122
Kurtosis		.044
Std. Error of Kurtosis		.243



1. Reflect
2. Common log
3. Reflect

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